COMPLETE MONOGRAPH

2015 GROUP A PUBLIC COMMENT AGENDA

SEPTEMBER 30 – OCTOBER 5, 2015
LONG BEACH CONVENTION CENTER
LONG BEACH, CA

ICC
INTERNATIONAL CODE COUNCIL®

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INTRODUCTION

This publication contains the Public Comment Agenda for consideration at the Public Comment Hearings of the International Code Council on September 30 – October 5, 2015 at the Long Beach Convention Center in Long Beach, CA (see page 1). See page xxxi for the hearing schedule.

This publication contains information necessary for consideration of public comments on the proposed code changes which have been considered at the ICC Committee Action Hearings held on April 19 – 27, 2015, at the Memphis Cook Convention Center in Memphis, TN. More specifically, this agenda addresses hearings on public comments on proposed code changes to the *International Building Code (Egress, Fire Safety and General), International Existing Building Code* (*Non-Structural*)*, International Fuel Gas Code, International Mechanical Code, International Plumbing Code, International Property Maintenance Code, International Private Sewage Disposal Code, International Residential Code (Mechanical* and *Plumbing)* and the *International Swimming Pool and Spa Code.*

ICC GOVERNMENTAL MEMBER REPRESENTATIVES

Council Policy #28, Code Development (page xi) requires that applications for Governmental Membership must have been received by March 20 of this year in order for the representatives of the Governmental Member to be eligible to vote at this Public Comment Hearing and the Online Governmental Consensus Vote which occurs approximately two weeks after the hearings. Further, *CP#28* requires that ICC Governmental Member Representatives reflect the eligible voters **30 days prior** to the start of the Public Comment Hearings. This includes new, as well as changes, to voting status. Sections 9.1 and 9.2 of *CP#28 (page xxvii) read as follows:*

9.1 **Eligible Final Action Voters:** Eligible Final Action voters include ICC Governmental Member Voting Representatives and Honorary Members in good standing who have been confirmed by ICC in accordance with the Electronic Voter Validation System. Such confirmations are required to be revalidated annually. Eligible Final Action voters in attendance at the Public Comment Hearing and those participating in the Online Governmental Consensus Vote shall have one vote per eligible voter on all Codes. Individuals who represent more than one Governmental Member shall be limited to a single vote.

9.2 **Applications:** Applications for Governmental Membership must be received by the ICC at least 30 days prior to the Committee Action Hearing in order for its designated representatives to be eligible to vote at the Public Comment Hearing or Online Governmental Consensus Vote. Applications, whether new or updated, for Governmental Member Voting Representative status must be received by the Code Council 30 days prior to the commencement of the first day of the Public Comment Hearing in order for any designated representative to be eligible to vote. An individual designated as a Governmental Member Voting Representative shall provide sufficient information to establish eligibility as defined in the ICC Bylaws. The Executive Committee of the ICC Board, in its discretion, shall have the authority to address questions related to eligibility.

As such, new and updated eligible voter status must be received by ICC's Member Services Department **by August 31, 2015**. This applies to both voting at the Public Comment Hearings as well as the Online Governmental Consensus Vote which occurs approximately two weeks after the hearings. This must be done via the Electronic Voter Designation System. Access the Electronic Voter Designation System directly by logging on to www.iccsafe.org/EVDS and using the email address and password connected to your Primary Representative account. The online form can also be accessed by logging onto "My ICC" and selecting "Designate Voters" or through the Electronic Voter Designation link in the left hand menu on the ICC home page at www.iccsafe.org. These records will be used to verify eligible voter status for the Public Comment Hearing and the Online Governmental Consensus Vote. Voting members are strongly encouraged to review their membership record for accuracy so that any necessary changes are made prior to the August 31 deadline. **Representatives of any Governmental Member that has made application for membership after March 20 will not be able to vote.**

ICC POLICY ON FINANCIAL ASSISTANCE FOR GOVERNMENTAL MEMBER VOTING REPRESENTATIVES

ICC Council Policy 36 Financial Assistance defines the circumstances under which it is permissible for Governmental Member Voting Representatives to accept funds to enable a Governmental Member Voting Representative to attend ICC code hearings. The policy seeks to prohibit, or appropriately regulate financial assistance which is designed to increase Participation by a Particular interest group or by those supporting a Particular position on a proposed code change.

As part of the registration process (see below), eligible voting members are required to verify their voting status in order to receive a voting device. Improper acceptance of financial assistance, or misrepresentation by a Governmental Member Voting Representative about compliance with CP 36, which are discovered after a code hearing, may result in sanctions regarding voting at future hearings by the Governmental Member Voting Representative or by other Governmental Member Voting Representatives from the same governmental member. CP 36 provides, in pertinent Part:

2.0. **Contributions.** To allow industry and the public to contribute to the goals of the ICC in transparent and accountable processes, organizations and individuals are permitted to contribute financial assistance to Governmental Members to further ICC Code Development Activities provided that:

2.1 Contributions of financial assistance to Governmental Member Voting Representatives for the purposes of enabling participation in ICC Code Development Activities are prohibited except for reimbursements by the ICC or its subsidiaries, a regional, state, or local chapter of the ICC, or the local, state or federal unit of government such Governmental Member Voting Representative is representing. For the purposes of this policy financial assistance includes the payment of expenses on behalf of the Governmental
Member or Governmental Member Voting Representative. Governmental Member Voting Representatives may self-fund for purposes of participating in ICC Activities.

2.2 A Governmental Member accepting contributions of financial assistance from industry or other economic interests shall do so by action of its elected governing body or chief administrative authority. A Governmental Member Voting Representative may not directly accept financial assistance from industry or other economic interests.

2.3 Any contributions to a Governmental Member of the ICC shall comply with applicable law, including but not limited to a Governmental Member's ethics, conflict of interest or other similar rules and regulations.

ADVANCE REGISTRATION

The Public Comment Hearings are only one component of the 2015 ICC Annual Conference and Group A Public Comment Hearings. **All attendees to the Public Comment Hearings are required to register. Registration for the Public Comment Hearings is FREE, and is necessary to verify voting status (see above). You are encouraged to register prior to the Public Comment Hearings. To register for the full Conference, the Education Program, or the Public Comment Hearings, go to https://www.eiseverywhere.com/ehome/iccconference/284335/ or go to www.iccsafe.org and click on the ICC 2015 Long Beach box on the ICC Home Page.**

NOTICE: If you or your companion require special accommodations to participate fully, please advise ICC of your needs.

AGENDA FORMAT

This Public Comment Hearing Agenda includes the Consent Agenda and the Individual Consideration Agenda for the code change proposals that comprise the 2015 Code Development Cycle. This will complete the Public Comment Hearings for the 2015 Code Development Cycle.

The Consent Agenda is comprised of proposed changes to the *International Building Code (Egress, Fire Safety and General), International Existing Building Code* (*Non-Structural*)*, International Fuel Gas Code, International Mechanical Code, International Plumbing Code, International Property Maintenance Code, International Private Sewage Disposal Code, International Residential Code (Mechanical* and *Plumbing)* and the *International Swimming Pool and Spa Code* which did not receive a successful assembly action or public comment, and therefore are not listed on the Individual Consideration Agenda.

The Individual Consideration Agenda is comprised of proposed changes which either received a successful assembly action or received a public comment in response to the Code Committee's action at the Committee Action Hearings.

Items on the Individual Consideration Agenda are published with information as originally published for the Committee Action Hearing as well as the published hearing results. Following the hearing results is the reason that the item is on the Individual Consideration Agenda followed by the public comments which were received.

Public testimony will follow the procedures given in *CP#28-05 Code Development* as published on page xxiv. Refer to the tentative hearing order on page xxxiii.

MODIFICATIONS & PUBLIC COMMENTS

In addition to modifications made by a committee at the Committee Action Hearings, *CP#28 Code Development* allows successful modifications which were voted on during the Online Assembly Vote following the Committee Action Hearings. In addition modifications can be proposed in form of a Public Comment following the Committee Action Hearings. The Public Comment deadline was July 17, 2015 and all Public Comments received have been incorporated into this document. **Further modifications are not permitted beyond those published in this agenda.**

Proposed changes on the Individual Consideration Agenda at the Public Comment Hearings may have up to five possible motions - Approval as Submitted, Approval as Modified by the Code Committee, Approval as Modified by a successful Assembly Action, Approval as Modified by a Public Comment, or Disapproval. A Public Comment Hearings Discussion Guide will be posted and copies available at the hearing which includes a list of allowable motions for each code change proposal.

CONSENT AGENDA

The Public Comment Consent Agenda consists of proposals which received neither a successful assembly action nor a public comment. The Public Comment Consent Agenda for each code will be placed before the assembly at the beginning of each code with a motion and vote to ratify final action in accordance with the results of the Committee Action Hearing.

INDIVIDUAL CONSIDERATION AGENDA

The Public Comment Hearing Individual Consideration Agenda is comprised of proposals which have a successful assembly action or public comment. For each code, the proposed changes on the Individual Consideration Agenda shall be placed before the assembly for individual consideration of each item. The hearing order is found on page xxxiii and the agenda starts on page 1.

ICC PUBLIC COMMENT HEARING PROCESS

The hearing process will follow CP #28. The process is summarized as follows and will occur for each code noted in the hearing order (CP #28 sections noted):

1. At the start of the hearings:
   - Requests to withdraw code changes
   - Requests to withdraw public comments
   - Requests to revise the hearing order
   - Consent Agenda voted (Section 7.5.4)

2. The first code change on the hearing order brought to the floor with a standing motion to sustain the committee action.

3. If the Committee Action is not Disapproval, a motion to approve a modification by a public comment may be presented (Section 7.5.8.6).

4. Public testimony on either the Committee Action (if Disapproval) or the public comment (Section 5.5.1)

5. ICC Governmental Member Representatives and Honorary Members ("eligible voters") in attendance vote on the motion under consideration. (See page i)

6. Depending on the motion and action determined by the vote, subsequent allowable motions in accordance with Sections 7.3.8.6 can be considered or voting on the main motion in accordance with 7.5.8.7 is taken. (A Public Comment Hearing Discussion Guide will be posted and copies available at the hearing which includes a listing of allowable motions.)

7. The public comment hearing result on the code change determined by a vote of the eligible voters is announced. In accordance with Section 7.3.6, reconsideration is not permitted. This result will be placed on the Online Governmental Consensus Vote (Section 8.0), which will be open approximately two weeks after the hearings are complete (see page v).

8. Repeat 2 – 7 for subsequent code changes

9. Go the next code indicated on the hearing order and repeat 1 – 8.

ELECTRONIC VOTING
PUBLIC COMMENT HEARING FOLLOWED BY ONLINE GOVERNMENTAL CONSENSUS VOTE

The public comment hearing is the first step in the process to arrive at Final Action on code changes – Public Comment Hearing (PCH) voting followed by the Online Governmental Consensus Vote (OGCV) utilizing cdpACCESS®. Be sure to review the deadlines and eligible voter information on page i. The sections noted below are the applicable sections of CP #28 which is published on page xi.

Public Comment Hearing Vote

The first step is the voting that will occur at the Public Comment Hearing. This process is regulated by Section 7.5.8 of CP #28. The hearings will be run in much the same way as in the past with a couple of changes.

The Consent Agenda will be voted with a motion to ratify the action taken at the Committee Action Hearings. This will be the Final Action on those code changes and they will not be considered in the Online Governmental Consensus Vote (Section 7.5.4).

As part of the Individual Consideration Agenda, individual motions for modifications to the main motion will be dealt with by a hand vote followed by the electronic vote if the outcome of the hand vote cannot be determined by the moderator. However, in accordance with Section 7.5.8.7, the vote on the main motion to determine the PCH action must be taken electronically with the vote recorded since this is necessary for the second step in the process. As noted in Section 7.5.8.8, if the motion is not successful, motions for Approval as Submitted or Approval as Modified are in order. A motion for Disapproval is not in order. The voting majorities have not changed and are indicated in Section 7.6. As in the past, if the code change proposal does not receive any of the required majorities in accordance with Section 7.6, Section 7.5.8.9 stipulates that the PCH action will be Disapproval. However, the vote recorded will be the vote count on the main motion in accordance with Section 7.5.8.7.

Online Governmental Consensus Vote

The second step in the final action process is the Online Governmental Consensus Vote (OGCV). This is a new process which was first used in the 2014 Cycle, which is built into cdpACCESS and is regulated by Section 8.0. It is anticipated that the ballot period will start approximately two weeks after the Public Comment Hearings and will be open for two weeks.

The results of the PCH set the agenda and ballot options for the OGCV. This is stipulated in Section 8.1. For example, if the action taken at the PCH is AMPC 1, 3, 7 (Approved as Modified by Public Comments 1,3 and 7) then the ballot will be structured to allow eligible voters to vote for either AMPC 1,3, 7 or Disapproval in accordance with the table. The voting majority required for AMPC 1, 3, 7 at the PCH was a 2/3 majority which is the same majority that applies to the OGCV. The vote tally from the PCH will be combined with the vote tally from the OGCV to determine the Final Action. In the example cited, the combined vote tally would be required to meet the 2/3 majority in order for the final action to be AMPC 1, 3, 7. If the voting majority is less than the 2/3 required, Section 10.3 stipulates the Final Action to be Disapproval.

Be sure to review Section 8.2 which identifies the composition of the ballot. Of note is item 4 where the PCH action is Approved as Modified. The resulting text will be presented in the ballot with the modification(s) incorporated into the original code change in order for the voter to see how the text would appear in the code. A key part of this ballot is also item 10 where the voter will have access to the hearing video from both hearings.

Non-eligible voters will also be able to log-in and view the OGCV ballot, but will not be permitted to vote.

Final Action on Proposed Code Changes

Section 10.0 regulates the tabulation, certification and posting of the final action results. In accordance with Section 10.4, the Final Action will be published as soon as practicable and will include the action and vote counts from both the PCH and OGCV.

VIEW THE PUBLIC COMMENT HEARINGS ON YOUR PC

The Public Comment Hearings are scheduled to be "webcast". Streaming video broadcast over the Internet will provide a gateway for all International Code Council members, the construction industry and other interested parties anywhere in the world to view and listen to the hearings. Logging on to the Internet broadcast will be as simple as going to the International Code Council web site, **www.iccsafe.org** and clicking on a link. [Actual site to be determined - be sure to check the ICC web site for further details].

The hearings can be seen free by anyone with Internet access. Minimum specifications for viewing the hearings are an Internet connection, sound card and Microsoft Windows Media Player. DSL, ISDN, Cable Modems or other leased-line connections are recommended for the best viewing experience. A dial-up modem connection will work, but with reduced video performance.

FINAL ACTION ON CODE CHANGE PROPOSAL G193

Code change proposal G193, considered by the IBC-General Committee, addresses the scope and application of the *International Building Code,* Chapter 29*.* As reported at the Committee Action Hearing, the action taken by the IBC-General Committee on this proposal coupled with the action taken at the 2015 Public Comment Hearings and subsequent Online Governmental Consensus Vote will be limited to an advisory recommendation to the ICC Board of Directors who will determine the final disposition on this proposed change in accordance with Section 1.3 of CP 28, which stipulates that the Board determines the scope of the I-Codes.

ICC WEBSITE - WWW.ICCSAFE.ORG

While great care has been exercised in the publication of this document, there may be errata posted for the Public Comment Agenda. Errata, if any, identified prior to the Public Comment Hearings will be posted as updates to the Public Comment Hearing Agenda on the ICC website at www.iccsafe.org. Users are encouraged to periodically review the ICC Website for updates to the 2015 Public Comment Hearing Agenda.

2015/2016/2017 ICC CODE DEVELOPMENT SCHEDULE

(Updated August 5, 2015 – Group C Code Cycle cancelled, explanatory note added.)

STEP IN CODE DEVELOPMENT CYCLE	DATE		
	2015 – Group A Codes IBC- E, IBC - FS, IBC -G, IEBC, IFGC, IMC, IPC, IPMC, IPSDC, IRC – M, IRC- P, ISPSC, IZC	**2016 – Group B Codes Admin, IBC-S, IECC-C, IECC/IRC-R, IFC, IRC - B, IWUIC**	**2017 – Group C Code IgCC** **CANCELLED** **SEE NOTES**
2015 EDITION OF I-CODES PUBLISHED	June 2, 2014		March 31, 2015 (approx.)
DEADLINE FOR RECEIPT OF APPLICATIONS FOR ALL CODE COMMITTEES	June 2, 2014 for the 2015/2016/2017 Cycle. Call for committee posted January 31, 2014 June 1, 2017 for the 2018/2019 Cycle. Call for committee to be posted in January/2017.		
DEADLINE FOR cdpACCESS ONLINE RECEIPT OF CODE CHANGE PROPOSALS	January 12, 2015	January 11, 2016	**CANCELLED**
WEB POSTING OF "PROPOSED CHANGES TO THE I-CODES"	March 13, 2015	March 8, 2016	
COMMITTEE ACTION HEARING (CAH)	April 19 – 30, 2015 Memphis Cook Convention Center Memphis, TN	April 17 – 27, 2016 Kentucky International Convention Center Louisville, KY	
ONLINE CAH ASSEMBLY FLOOR MOTION VOTING PERIOD	Starts approx. two weeks after last day of CAH. Open for 2 weeks.	Starts approx. two weeks after last day of CAH. Open for 2 weeks.	
WEB POSTING OF "REPORT OF THE COMMITTEE ACTION HEARING"	June 5, 2015	June 1, 2016	
DEADLINE FOR cdpACCESS ONLINE RECEIPT OF PUBLIC COMMENTS	July 17, 2015	July 22, 2016	
WEB POSTING OF "PUBLIC COMMENT AGENDA"	August 28, 2015	September 9, 2016	
PUBLIC COMMENT HEARING (PCH) ANNUAL CONFERENCE DATES NOTED BY AC	September 30 – October 7, 2015 Long Beach Convention Center Long Beach, CA AC: September 27 - 29	October 19 – 25, 2016 Kansas City Convention Center Kansas City, MO AC: October 16 – 18	
ONLINE GOVERNMENTAL CONSENUS VOTING PERIOD	Starts approx. two weeks after last day of PCH. Open for 2 weeks.	Starts approx. two weeks after last day of PCH. Open for 2 weeks.	**CANCELLED**

Group A Codes/Code committees:

- IBC-E: IBC Egress provisions. Chapters 10 and 11
- IBC-FS: IBC Fire Safety provisions. Chapters 7, 8, 9 (partial), 14 and 26. Majority of IBC Chapter 9 is maintained by the IFC in Group B. See notes
- IBC-G: IBC General provisions. Chapters 3 – 6, 12, 13, 27 – 33
- IEBC: IEBC non structural provisions. See notes
- IFGC
- IMC
- IPC
- IPMC (code changes heard by the IPMZC code committee)
- IPSDC (code changes heard by the IPC code committee)
- IRC-M: IRC Mechanical provisions. Chapters 12 – 23 (code changes heard by the IRC - MP code committee)
- IRC-P: IRC Plumbing provisions. Chapters 25 – 33 (code changes heard by the IRC - MP code committee)
- ISPSC
- IZC (code changes heard by the IPMZC code committee)

Group B Codes/Code committees:

- Admin: Chapter 1 of all the I-Codes except the IECC, IgCC and IRC. Also includes the update of currently referenced standards in all of the 2015 Codes except IgCC. See notes regarding IgCC
- IBC-S: IBC Structural provisions. IBC Chapters 15 – 25 and IEBC structural provisions. See notes
- IECC-C: IECC Commercial energy provisions
- IECC/IRC-R: IECC Residential energy provisions and IRC Energy provisions in Chapter 11
- IFC: The majority of IFC Chapter 10 is maintained by IBC-E in Group A. See notes
- IRC-B: IRC Building provisions. Chapters 1 – 10
- IWUIC (code changes heard by the IFC code committee)

Notes:

- Be sure to review the document entitled “2015/2016/2017 Code Committee Responsibilities” which will be posted. This identifies responsibilities which are different than Group A, and B codes and committees which may impact the applicable code change cycle and resulting code change deadline. As an example, throughout Chapter 9 of the IBC (IBC- Fire Safety, a Group A code committee), there are numerous sections which include the designation “[F]” which indicates that the provisions of the section are maintained by the IFC code committee (a Group B code committee). Similarly, there are numerous sections in the IEBC which include the designation “[BS]”. These are structural provisions which will be heard in Group B by the IBC – Structural committee while the non structural provisions will be maintained in the 2015 Group A Cycle by the IEBC code committee. The designations in the code are identified in the Code Committee Responsibilities document.
- Proposed changes to the ICC Performance Code will be heard by the code committee noted in brackets ([ ]) in the section of the code and in the Code Committee Responsibilities document.
- Definitions. Be sure to review the brackets ([ ]) in Chapter 2 of the applicable code and the Code Committee Responsibilities document to determine which code committee will consider proposed changes to the definitions.
- As reported in the July 21, 2015 ICC News Release, ICC and ASHRAE have agreed to consolidate the IgCC and ASHRAE Standard 189.1. ICC’s responsibility for the 2018 IgCC will be Chapter 1, and ASHRAE will have responsibility for all the technical provisions. Thus the 2017 Group C cycle becomes unnecessary, and has been cancelled.
- There will be no code change activity for Chapter 1 of the IgCC in 2016. However, going forward, any code change proposals for Chapter 1 of the IgCC will be the responsibility of the Administrative Code Development Committee. Code Change Proposals will next be heard for Chapter 1 of the IgCC during the Group B Cycle in 2019.

2015 – 2017 ICC CODE DEVELOPMENT CYCLE & cdpACCESS® Update

International Green Construction Code to be Joint Responsibility of ASHRAE and ICC.

On July 21, 2015 ICC announced that the International Code Council (ICC) and ASHRAE have signed the final agreement that outlines each organization's role in the development and maintenance of the new version of the *International Green Construction Code* (IgCC) sponsored by the American Institute of Architects (AIA), ASHRAE, ICC, the Illuminating Engineering Society (IES) and the U.S. Green Building Council (USGBC)**.** The code, scheduled to be released in 2018, will be powered by ANSI/ASHRAE/ICC/IES/USGBC Standard 189.1, *Standard for the Design of High-Performance, Green Buildings Except Low-Rise Residential Buildings* developed using the American National Standards Institute (ANSI) approved ASHRAE consensus process. The joint Standing Standards Project Committee 189.1 (SSPC) will serve as the consensus body that will work to ensure the standard is consistent and coordinated with the ICC Family of Codes.

The ICC will be responsible for Chapter 1, Scope and Administration. For the 2018 IgCC, ICC will coordinate the technical provisions developed by ASHRAE with the provisions in Chapter 1 of the 2015 IgCC. As a result, the 2016 Group B Cycle will not include Chapter 1 of the IgCC for code changes. With ASHRAE developing technical provisions, ICC's 2017 Group C cycle to develop the 2018 IgCC has been cancelled. Part of the development process for the 2018 technical provisions will include the SSPC review of the 2015 IgCC and consideration of content for inclusion in 189.1-2017 along with changes generated by the committee and proposals submitted by stakeholders. Following the completion of the 2018 IgCC, Chapter 1 of the IgCC will be developed for subsequent editions by ICC using its consensus code development process.

As a result of this change in the IgCC development, the hearing schedule, the 2015 – 2017 Group A, Group B, and Group C committee responsibility matrix, and the ICC Code Development pages at www.iccsafe.org have been updated.

Submittal of Group B Code Change Proposals on cdpACCESS open

cdpACCESS is open to accept code change proposals for the 2016 (Group B) code development cycle. Code changes will be accepted for the IBC-Structural provisions, IECC Commercial provisions, the IECC-Residential Provisions and Chapter 11 of the IRC, IRC-Building provisions (Chapters 1 – 10), the IFC, and the IWUIC. In addition code change proposals for Chapter 1 of all codes except the IECC, IgCC, and IRC, and any updates to standards currently referenced in the I-Codes will be considered by the Administrative Code Development Committee and code change proposals will also be considered for the portions of the *ICC Performance Code* and Group A codes as listed in the 2015 – 2017 Group A and Group B Committee Responsibilities for the Group B cycle posted on the ICC website. The deadline for 2016 (Group B) change proposals is January 11, 2016.

New Feature Added to cdpACCESS

The newest feature added to cdpACCESS is My cdpACCESS. Users can access this page after logging into cdpACCESS.com by clicking on their name in the top right corner of the page or visiting https://cdpaccess.com/mycdpaccess/. By selecting a Group, users can view and download shared proposals, floor modifications, public comments, and voting information from that Group -- their own as well as those shared through collaboration. This historical data will be permanently available to users through this page.

2015 - 2016 STAFF SECRETARIES

GROUP A (2015)

IBC-Fire Safety Chapters 7, 8, 9, 14, 26	IBC-General Chapters 1-6, 12, 13, 27-34	IBC-Means of Egress Chapters 10, 11	IEBC	IFGC
Ed Wirtschoreck ICC Chicago District Office 1-888-ICC-SAFE, ext 4317 FAX: 708/799-0320 ewirtschoreck@iccsafe.org	Allan Bilka Kermit Robinson ICC Northbridge Field Office 1-888-ICC-SAFE, ext 7708 FAX: 419/ 730-6531 abilka@iccsafe.org krobinson@iccsafe.org	Kim Paarlberg ICC Indianapolis Field Office 1-888-ICC-SAFE, ext 4306 FAX: 708/799-0320 kpearlberg@iccsafe.org	BethTubbs ICC Northbridge Field Office 1-888-ICC-SAFE, ext 7708 FAX: 419/ 730-6531 btubbs@iccsafe.org	Gregg Gress ICC Chicago District Office 1-888-ICC-SAFE, ext 4343 FAX: 708/799-0320 ggress@iccsafe.org
IMC	**IPC/IPSDC**	**IPMC**	**IRC Mechanical**	**IRC Plumbing**
Gregg Gress ICC Chicago District Office 1-888-ICC-SAFE, ext 4343 FAX: 708/799-0320 ggress@iccsafe.org	Fred Grable ICC Chicago District Office 1-888-ICC-SAFE, ext 4359 FAX: 708/799-0320 fgrable@iccsafe.org	Ed Wirtschoreck ICC Chicago District Office 1-888-ICC-SAFE, ext 4317 FAX: 708/799-0320 ewirtschoreck@iccsafe.org	Gregg Gress ICC Chicago District Office 1-888-ICC-SAFE, ext 4343 FAX: 708/799-0320 ggress@iccsafe.org	Fred Grable ICC Chicago District Office 1-888-ICC-SAFE, ext 4359 FAX: 708/799-0320 fgrable@iccsafe.org
ISPSC	**IZC**			
Fred Grable ICC Chicago District Office 1-888-ICC-SAFE, ext 4359 FAX: 708/799-0320 fgrable@iccsafe.org	Ed Wirtschoreck ICC Chicago District Office 1-888-ICC-SAFE, ext 4317 FAX: 708/799-0320 ewirtschoreck@iccsafe.org			

GROUP B (2016)

ADMINISTRATIVE Chapter 1 All Codes Except IECC, IgCC and IRC	IBC-Structural Chapters 15-25	IECC-Commercial	IECC-Residential and IRC – Energy	IFC
Kim Paarlberg ICC Indianapolis Field Office 1-888-ICC-SAFE, ext 4306 FAX: 708/799-0320 kpearlberg@iccsafe.org	Alan Carr ICC NW Resource Center 1-888-ICC-SAFE, ext 7601 FAX: 425/637-8939 acarr@iccsafe.org	Gregg Gress Whittier Office 1-888-ICC-SAFE, ext 3317 FAX: 562/699-4522 ggress@iccsafe.org	Fred Grable ICC Chicago District Office 1-888-ICC-SAFE, ext 4323 FAX: 708/799-0320 fgrable@iccsafe.org	Beth Tubbs/Keith Enstrom ICC Chicago District Office 1-888-ICC-SAFE, ext 4342 FAX: 708/799-0320 btubbs@iccsafe.org kenstrom@iccsafe.org
IRC-Building	**IWUIC**			
Larry Franks/ Allan Bilka ICC Birmingham District Office 1-888-ICC-SAFE, ext 5279 FAX: 205/592-7001 lfranks@iccsafe.org abilka@iccsafe.org	Keith Enstrom ICC Chicago District Office 1-888-ICC-SAFE, ext 4342 FAX: 708/799-0320 kenstrom@iccsafe.org			

CP #28-05 CODE DEVELOPMENT

Approved: 9/24/05
Revised: 9/27/14

1.0 Introduction

1.1 **Purpose:** The purpose of this Council Policy is to prescribe the Rules of Procedure utilized in the continued development and maintenance of the International Codes (Codes).

1.2 **Objectives:** The ICC Code Development Process has the following objectives:

1.2.1 The timely evaluation and recognition of technological developments pertaining to construction regulations.

1.2.2 The open discussion of code change proposals by all parties desiring to participate.

1.2.3 The final determination of Code text by public officials actively engaged in the administration, formulation or enforcement of laws, ordinances, rules or regulations relating to the public health, safety and welfare and by honorary members.

1.2.4 The increased participation of all parties desiring to participate through an online submittal and voting process that includes opportunities for online collaboration.

1.3 **Code Publication:** The ICC Board of Directors (ICC Board) shall determine the title and the general purpose and scope of each Code published by the ICC.

1.3.1 **Code Correlation:** The provisions of all Codes shall be consistent with one another so that conflicts between the Codes do not occur. A Code Scoping Coordination Matrix shall determine which Code shall be the primary document, and therefore which code development committee shall be responsible for maintenance of the code text where a given subject matter or code text could appear in more than one Code. The Code Scoping Coordination Matrix shall be administered by the Code Correlation Committee as approved by the ICC Board. Duplication of content or text between Codes shall be limited to the minimum extent necessary for practical usability of the Codes, as determined in accordance with Section 4.5.

1.4 **Process Maintenance:** The review and maintenance of the Code Development Process and these Rules of Procedure shall be by the ICC Board. The manner in which Codes are developed embodies core principles of the organization. One of those principles is that the final content of the Codes is determined by a majority vote of the governmental and honorary members. It is the policy of the ICC Board that there shall be no change to this principle without the affirmation of two-thirds of the governmental and honorary members responding.

1.5 **Secretariat:** The Chief Executive Officer shall assign a Secretariat for each of the Codes. All correspondence relating to code change proposals and public comments shall be addressed to the Secretariat. The Secretariat shall have the authority to

facilitate unforeseen situations which arise in the implementation of this council policy. Staff shall maintain a record of such actions.

1.6 **Recording:** Individuals requesting permission to record any meeting or hearing, or portion thereof, shall be required to provide the ICC with a release of responsibility disclaimer and shall acknowledge that ICC shall retain sole ownership of the recording, and that they have insurance coverage for liability and misuse of recording materials. Equipment and the process used to record shall, in the judgment of the ICC Secretariat, be conducted in a manner that is not disruptive to the meeting. The ICC shall not be responsible for equipment, personnel or any other provision necessary to accomplish the recording. An unedited copy of the recording shall be forwarded to ICC within 30 days of the meeting. Recordings shall not otherwise be copied, reproduced or distributed in any manner. Recordings shall be returned to ICC or destroyed upon the request of ICC.

2.0 Code Development Cycle

2.1 **Intent:** The code development cycle shall consist of the complete consideration of code change proposals in accordance with the procedures herein specified, commencing with the deadline for submission of code change proposals (see Section 3.5) and ending with publication of the Final Action on the code change proposals (see Section 10.4).

2.2 **New Editions:** The ICC Board shall determine the schedule for publishing new editions of the Codes. Each new edition shall incorporate the results of the code development activity since the previous edition.

2.3 **Supplements:** The results of code development activity between editions may be published.

2.4 **Emergency Action Procedures:**

2.4.1 **Scope:** Emergency actions are limited to those issues representing an immediate threat to health and safety that warrant a more timely response than allowed by the Code Development Process schedule.

2.4.2 **Initial Request:** A request for an emergency action shall be based upon perceived threats to health and safety and shall be reviewed by the Codes and Standards Council for referral to the ICC Board for action with their analysis and recommendation.

2.4.3 **Board and Member Action:** In the event that the ICC Board determines that an emergency amendment to any Code or supplement thereto is warranted, the same may be adopted by the ICC Board. Such action shall require an affirmative vote of at least two-thirds of the ICC Board.

The ICC membership shall be notified within ten days after the ICC Boards' official action of any emergency amendment. At the next Annual Business Meeting, any emergency amendment shall be presented to the members for ratification by a majority of the Governmental Member Voting Representatives and Honorary Members present and voting.

All code revisions pursuant to these emergency procedures and the reasons for such corrective action shall be published as soon as practicable after ICC Board action. Such revisions shall be identified as an emergency amendment.

Emergency amendments to any Code shall not be considered as a retro-active requirement to the Code. Incorporation of the emergency amendment into the adopted Code shall be subjected to the process established by the adopting

authority.

2.5 **Code Development Record.** The code development record shall include the official documents and records developed in support of the given code development cycle. This includes the following:

1. Code Change Agenda (Section 4.8)
2. Audio and video recording of the Committee Action Hearing (Section 5.1)
3. The Online Assembly Floor Motion Ballot (Section 5.7.3)
4. Report of the Committee Action Hearing (Section 5.8)
5. Public Comment Agenda (Section 6.6)
6. Public Comment Hearing results (Section 7.5.8.10)
7. Audio and video recording of the Public Comment Hearing (Section 7.1)
8. The Online Governmental Consensus Ballot (Section 8.2)
9. Final Action results (Section 10.4)
10. Errata to the documents noted above

The information resulting from online collaboration between interested parties shall not be part of the code development record.

3.0 Submittal of Code Change Proposals

3.1 **Intent:** Any interested person, persons or group may submit a code change proposal which will be duly considered when in conformance to these Rules of Procedure.

3.2 **Withdrawal of Proposal:** A code change proposal may be withdrawn by the proponent (WP) at any time prior to public comment consideration of that proposal. All actions on the code change proposal shall cease immediately upon the withdrawal of the code change proposal.

3.3 **Form and Content of Code Change Submittals:** Each code change proposal shall be submitted separately and shall be complete in itself. Each submittal shall contain the following information:

3.3.1 **Proponent:** Each code change proposal shall include the name, title, mailing address, telephone number, and email address of the proponent. Email addresses shall be published with the code change proposals unless the proponent otherwise requests on the submittal form.

3.3.1.1 If a group, organization or committee submits a code change proposal, an individual with prime responsibility shall be indicated.

3.3.1.2 If a proponent submits a code change proposal on behalf of a client, group, organization or committee, the name and mailing address of the client, group, organization or committee shall be indicated.

3.3.2 **Code Reference:** Each code change proposal shall relate to the applicable code sections(s) in the latest edition of the Code.

3.3.2.1 If more than one section in the Code is affected by a code change proposal, appropriate proposals shall be included for all such affected sections.

3.3.2.2 If more than one Code is affected by a code change proposal, appropriate proposals shall be included for all such affected Codes and appropriate cross referencing shall be included in the supporting information.

3.3.3 **Multiple Code Change Proposals to a Code Section.** A proponent shall not submit multiple code change proposals to the same code section. When a proponent submits multiple code change proposals to the same section, the proposals shall be considered as incomplete proposals and processed in accordance with Section 4.3. This restriction shall not apply to code change proposals that attempt to address differing subject matter within a code section.

3.3.4 **Text Presentation:** The text of the code change proposal shall be presented in the specific wording desired with deletions shown struck out with a single line and additions shown underlined with a single line.

3.3.4.1 A charging statement shall indicate the referenced code section(s) and whether the code change proposal is intended to be an addition, a deletion or a revision to existing Code text.

3.3.4.2 Whenever practical, the existing wording of the text shall be preserved with only such deletions and additions as necessary to accomplish the desired change.

3.3.4.3 Each code change proposal shall be in proper code format and terminology.

3.3.4.4 Each code change proposal shall be complete and specific in the text to eliminate unnecessary confusion or misinterpretation.

3.3.4.5 The proposed text shall be in mandatory terms.

3.3.5 **Supporting Information:** Each code change proposal shall include sufficient supporting information to indicate how the code change proposal is intended to affect the intent and application of the Code.

3.3.5.1 **Purpose:** The proponent shall clearly state the purpose of the code change proposal (e.g. clarify the Code; revise outdated material; substitute new or revised material for current provisions of the Code; add new requirements to the Code; delete current requirements, etc.)

3.3.5.2 **Reasons:** The proponent shall justify changing the current Code provisions, stating why the code change proposal is superior to the current provisions of the Code. Code change proposals which add or delete requirements shall be supported by a logical explanation which clearly shows why the current Code provisions are inadequate or overly restrictive, specifies the shortcomings of the current Code provisions and explains how such code change proposals will improve the Code.

3.3.5.3 **Substantiation:** The proponent shall substantiate the code change proposal based on technical information and substantiation. Substantiation provided which is reviewed in accordance with Section 4.2 and determined as not germane to the technical issues addressed in the code change proposal may be identified as such. The proponent shall be notified that the code change proposal is considered an incomplete proposal in accordance with Section 4.3 and the proposal shall be held until the deficiencies are corrected. The proponent shall have the right to appeal this action in accordance with the policy of the ICC Board. The burden of providing substantiating material lies with the proponent of the code change proposal. All substantiating material published by ICC is material that has been provided by the proponent and in so publishing ICC makes no representations or warranties about its quality or accuracy.

3.3.5.4 **Bibliography:** The proponent shall submit a bibliography of any

substantiating material submitted with the code change proposal. The bibliography shall be published with the code change proposal and the proponent shall make the substantiating materials available for review at the appropriate ICC office and during the public hearing.

3.3.5.5 **Copyright Release:** The proponent of code change proposals, floor modifications and public comments shall sign a copyright release reading: "I hereby grant and assign to ICC all rights in copyright I may have in any authorship contributions I make to ICC in connection with any proposal and public comment, in its original form submitted or revised form, including written and verbal modifications submitted in accordance Section 5.5.2. I understand that I will have no rights in any ICC publications that use such contributions in the form submitted by me or another similar form and certify that such contributions are not protected by the copyright of any other person or entity."

3.3.5.6 **Cost Impact:** The proponent shall indicate one of the following regarding the cost impact of the code change proposal: 1) the code change proposal will increase the cost of construction; or 2) the code change proposal will not increase the cost of construction. The proponent shall submit information which substantiates either assertion. This information will be considered by the code development committee and will be included in the bibliography of the published code change proposal. Any proposal submitted which does not include the requisite cost information shall be considered incomplete and shall not be processed.

3.4 **Online Submittal:** Each code change proposal and all substantiating information shall be submitted online at the website designated by ICC. Two copies of each proposed new referenced standard in hard copy or one copy in electronic form shall be submitted. Additional copies may be requested when determined necessary by the Secretariat to allow such information to be distributed to the code development committee. Where such additional copies are requested, it shall be the responsibility of the proponent to send such copies to the respective code development committee.

3.5 **Submittal Deadline:** ICC shall establish and post the submittal deadline for each cycle. The posting of the deadline shall occur no later than 120 days prior to the code change deadline. Each code change proposal shall be submitted online at the website designated by ICC by the posted deadline. The submitter of a code change proposal is responsible for the proper and timely receipt of all pertinent materials by the Secretariat.

3.6 **Referenced Standards:** In order for a standard to be considered for reference or to continue to be referenced by the Codes, a standard shall meet the following criteria:

3.6.1 Code References:

3.6.1.1 The standard, including title and date, and the manner in which it is to be utilized shall be specifically referenced in the Code text.

3.6.1.2 The need for the standard to be referenced shall be established.

3.6.2 Standard Content:

3.6.2.1 A standard or portions of a standard intended to be enforced shall be written in mandatory language.

3.6.2.2 The standard shall be appropriate for the subject covered.

3.6.2.3 All terms shall be defined when they deviate from an ordinarily accepted meaning or a dictionary definition.

3.6.2.4 The scope or application of a standard shall be clearly described.

3.6.2.5 The standard shall not have the effect of requiring proprietary materials.

3.6.2.6 The standard shall not prescribe a proprietary agency for quality control or testing.

3.6.2.7 The test standard shall describe, in detail, preparation of the test sample, sample selection or both.

3.6.2.8 The test standard shall prescribe the reporting format for the test results. The format shall identify the key performance criteria for the element(s) tested.

3.6.2.9 The measure of performance for which the test is conducted shall be clearly defined in either the test standard or in Code text.

3.6.2.10 The standard shall not state that its provisions shall govern whenever the referenced standard is in conflict with the requirements of the referencing Code.

3.6.2.11 The preface to the standard shall announce that the standard is promulgated according to a consensus procedure.

3.6.3 Standard Promulgation:

3.6.3.1 Code change proposals with corresponding changes to the code text which include a reference to a proposed new standard or a proposed update of an existing referenced standard shall comply with this section. The standard shall be completed and readily available prior to the Public Comment Hearing based on the cycle of code development which includes the code change proposal. In order for a new standard to be considered for reference by the Code, such standard shall be submitted in at least a consensus draft form in accordance with Section 3.4. If a new standard is not submitted in at least draft form, the code change proposal shall be considered incomplete and shall not be processed. Updating of standards without corresponding code text changes shall be accomplished administratively in accordance with Section 4.6.

3.6.3.2 The standard shall be developed and maintained through a consensus process such as ASTM or ANSI.

4.0 Processing of Code Change Proposals

4.1 Intent: The processing of code change proposals is intended to ensure that each proposal complies with these Rules of Procedure and that the resulting published code change proposal accurately reflects that proponent's intent.

4.2 Review: Upon receipt in the Secretariat's office, the code change proposals will be checked for compliance with these Rules of Procedure as to division, separation, number of copies, form, language, terminology, supporting statements and substantiating data. Where a code change proposal consists of multiple parts which fall under the maintenance responsibilities of different code committees, the Secretariat shall determine the code committee responsible for determining the committee action in accordance with Section 5.6 and the Code Scoping Coordination Matrix (see Section 1.3.1).

4.3 Incomplete Code Change Proposals: When a code change proposal is submitted with incorrect format, without the required information or judged as not in compliance with these Rules of Procedure, the Secretariat shall notify the proponent of the specific deficiencies and the proposal shall be held until the deficiencies are corrected, with a final date set for receipt of a corrected submittal. If the Secretariat receives the corrected code change proposal after the final date, the proposal shall be held over until the next code development cycle. Where there are otherwise no deficiencies

addressed by this section, a code change proposal that incorporates a new referenced standard shall be processed with an analysis of the referenced standard's compliance with the criteria set forth in Section 3.6.

4.4 **Editorial Code Change Proposals.** When a code change proposal is submitted that proposes an editorial or format change that, in the opinion of the Secretariat, does not affect the scope or application of the code, the proposal shall be submitted to the Code Correlation Committee who shall deem the code change proposal as editorial or send the proposal back to the Secretariat to be considered by the appropriate code development committee. To be deemed editorial, such proposal shall require a majority vote of the Code Correlation Committee. Editorial proposals shall be published in the Code Change Agenda. Such proposals shall be added to the hearing agenda for consideration by the appropriate code development committee upon written request to ICC by any individual. The deadline to submit such requests shall be 14 days prior to the first day of the Committee Action Hearing. Code Correlation Committee proposals that are not added to a code development committee hearing agenda shall be published in the next edition of the code with no further consideration.

4.5 **Copy Editing Code Text:** The Chief Executive Officer shall have the authority at all times to make editorial style and format changes to the Code text, or any approved changes, consistent with the intent, provisions and style of the Code. Such editorial style or format changes shall not affect the scope or application of the Code requirements.

4.6 **Updating Standards Referenced in the Codes:** The updating of standards referenced by the Codes shall be accomplished administratively by the Administrative Code Development Committee in accordance with these full procedures except that the deadline for availability of the updated standard and receipt by the Secretariat shall be December 1 of the third year of each code cycle. The published version of the new edition of the Code which references the standard will refer to the updated edition of the standard. If the standard is not available by the deadline, the edition of the standard as referenced by the newly published Code shall revert back to the reference contained in the previous edition and an errata to the Code issued. Multiple standards to be updated may be included in a single proposal.

4.7 **Preparation:** All code change proposals in compliance with these procedures shall be prepared in a standard manner by the Secretariat and be assigned separate, distinct and consecutive numbers. The Secretariat shall coordinate related proposals submitted in accordance with Section 3.3.2 to facilitate the hearing process.

4.8 **Code Change Agenda:** All code change proposals shall be posted on the ICC website at least 30 days prior to the Committee Action Hearing on those proposals and shall constitute the agenda for the Committee Action Hearing. Any errata to the Code Change Agenda shall be posted on the ICC website as soon as possible. Code change proposals which have not been published in the original posting or subsequent errata shall not be considered.

5.0 Committee Action Hearing

5.1 **Intent:** The intent of the Committee Action Hearing is to permit interested parties to present their views including the cost and benefits on the code change proposals on the published agenda. The code development committee will consider such comments as may be presented in the development of their action on the disposition of such code change proposals. At the conclusion of the code development committee deliberations, the committee action on each code change proposal shall be placed before the hearing assembly for consideration in accordance with Section 5.7.

5.2 **Committee:** The Codes and Standards Council shall review all applications and make committee appointment recommendations to the ICC Board. The Code Development

Committees shall be appointed by the ICC Board.

5.2.1 Chairman/Moderator: The Chairman and Vice-Chairman shall be appointed by the Codes and Standards Council from the appointed members of the committee. The ICC President shall appoint one or more Moderators who shall act as presiding officer for the Committee Action Hearing.

5.2.2 Conflict of Interest: A committee member shall withdraw from and take no part in those matters with which the committee member has an undisclosed financial, business or property interest. The committee member shall not participate in any committee discussion or any committee vote on the matter in which they have an undisclosed interest. A committee member who is a proponent of a code change proposal shall not participate in any committee discussion on the matter or any committee vote. Such committee member shall be permitted to participate in the floor discussion in accordance with Section 5.5 by stepping down from the dais.

5.2.3 Representation of Interest: Committee members shall not represent themselves as official or unofficial representatives of the ICC except at regularly convened meetings of the committee.

5.2.4 Committee Composition: The committee may consist of representation from multiple interests. A minimum of thirty-three and one-third percent (33.3%) of the committee members shall be regulators.

5.3 Date and Location: The date and location of the Committee Action Hearing shall be announced not less than 60 days prior to the date of the hearing.

5.4 General Procedures: *The Robert's Rules of Order* shall be the formal procedure for the conduct of the Committee Action Hearing except as a specific provision of these Rules of Procedure may otherwise dictate. A quorum shall consist of a majority of the voting members of the committee.

5.4.1 Chair Voting: The Chairman of the committee shall vote only when the vote cast will break a tie vote of the committee.

5.4.2 Open Hearing: The Committee Action Hearing is an open hearing. Any interested person may attend and participate in the floor discussion and assembly consideration portions of the hearing. Only code development committee members may participate in the committee action portion of the hearings (see Section 5.6). Participants shall not advocate a position on specific code change proposals with committee members other than through the methods provided in this policy.

5.4.3 Presentation of Material at the Public Hearing: Information to be provided at the hearing shall be limited to verbal presentations and modifications submitted in accordance with Section 5.5.2. Each individual presenting information at the hearing shall state their name and affiliation, and shall identify any entities or individuals they are representing in connection with their testimony. Audio-visual presentations are not permitted. Substantiating material submitted in accordance with Section 3.3.5.3 and other material submitted in response to a code change proposal shall be located in a designated area in the hearing room and shall not be distributed to the code development committee at the public hearing.

5.4.4 Agenda Order: The Secretariat shall publish a Code Change Agenda for the Committee Action Hearing, placing individual code change proposals in a logical order to facilitate the hearing. Any public hearing attendee may move to revise the agenda order as the first order of business at the public hearing, or

at any time during the hearing except while another code change proposal is being discussed. Preference shall be given to grouping like subjects together, and for moving items back to a later position on the agenda as opposed to moving items forward to an earlier position. A motion to revise the agenda order is subject to a 2/3 vote of those present and voting.

5.4.5 Reconsideration: There shall be no reconsideration of a code change proposal after it has been voted on by the committee in accordance with Section 5.6.

5.4.6 Time Limits: Time limits shall be established as part of the agenda for testimony on all code change proposals at the beginning of each hearing session. Each person requesting to testify on a code change proposal shall be given equal time. In the interest of time and fairness to all hearing participants, the Moderator shall have limited authority to modify time limitations on debate. The Moderator shall have the authority to adjust time limits as necessary in order to complete the hearing agenda.

5.4.6.1 Time Keeping: Keeping of time for testimony by an individual shall be by an automatic timing device. Remaining time shall be evident to the person testifying. Interruptions during testimony shall not be tolerated. The Moderator shall maintain appropriate decorum during all testimony.

5.4.6.2 Proponent Testimony: The Proponent is permitted to waive an initial statement. The Proponent shall be permitted to have the amount of time that would have been allocated during the initial testimony period plus the amount of time that would be allocated for rebuttal. Where the code change proposal is submitted by multiple proponents, this provision shall permit only one proponent of the joint submittal to be allotted additional time for rebuttal.

5.4.7 Points of Order: Any person participating in the public hearing may challenge a procedural ruling of the Moderator or the Chairman. A majority vote of ICC Members in attendance shall determine the decision.

5.5 Floor Discussion: The Moderator shall place each code change proposal before the hearing for discussion by identifying the proposal and by regulating discussion as follows:

5.5.1 Discussion Order:

1. Proponents. The Moderator shall begin by asking the proponent and then others in support of the code change proposal for their comments.
2. Opponents. After discussion by those in support of a code change proposal, those opposed hereto, if any, shall have the opportunity to present their views.
3. Rebuttal in support. Proponents shall then have the opportunity to rebut points raised by the opponents.
4. Re-rebuttal in opposition. Opponents shall then have the opportunity to respond to the proponent's rebuttal.

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5.5.2 Modifications: Modifications to code change proposals may be suggested from the floor by any person participating in the public hearing. The person proposing the modification is deemed to be the proponent of the modification.

5.5.2.1 Submission. All modifications shall be submitted electronically to the ICC_Secretariat in a format determined by ICC unless

determined by the Chairman to be either editorial or minor in nature. The modification will be forwarded electronically to the members of the code development committee during the hearing and will be projected on the screen in the hearing room.

5.5.2.2 **Criteria.** The Chairman shall rule proposed modifications in or out of order before they are discussed on the floor. A proposed modification shall be ruled out of order if it:

1. is not legible, unless not required to be written in accordance with Section 5.5.2.1; or
2. changes the scope of the original code change proposal; or
3. is not readily understood to allow a proper assessment of its impact on the original code change proposal or the Code.

The ruling of the Chairman on whether or not the modification is in or out of order shall be final and is not subject to a point of order in accordance with Section 5.4.7.

5.5.2.3 **Testimony.** When a modification is offered from the floor and ruled in order by the Chairman, a specific floor discussion on that modification is to commence in accordance with the procedures listed in Section 5.5.1.

5.6 **Committee Action:** Following the floor discussion of each code change proposal, one of the following motions shall be made and seconded by members of the committee:

1. Approve the code change proposal As Submitted (AS) or
2. Approve the code change proposal As Modified with specific modifications (AM), or
3. Disapprove the code change proposal (D)

Discussion on this motion shall be limited to code development committee members. If a committee member proposes a modification which had not been proposed during floor discussion, the Chairman shall rule on the modification in accordance with Section 5.5.2.2. If a committee member raises a matter of issue, including a proposed modification, which has not been proposed or discussed during the floor discussion, the Moderator shall suspend the committee discussion and shall reopen the floor discussion for comments on the specific matter or issue. Upon receipt of all comments from the floor, the Moderator shall resume committee discussion.

The code development committee shall vote on each motion with the majority dictating the committee's action. Committee action on each code change proposal shall be completed when one of the motions noted above has been approved. Each committee vote shall be supported by a reason.

The code development committee shall maintain a record of its proceedings including the action on each code change proposal.

5.7 **Assembly Consideration:** At the conclusion of the committee's action on a code change proposal and before the next code change proposal is called to the floor, the Moderator shall ask for a motion from the public hearing attendees who may object to the committee's action. If a motion in accordance with Section 5.7.1 is not brought forward on the committee's action, the results of the Committee Action Hearing shall be established by the committee's action.

5.7.1 **Assembly Floor Motion:** Any attendee may raise an objection to the committee's action in which case the attendee will be able to make a motion to:

1. Approve the code change proposal As Submitted from the Floor (ASF), or

2. Approve the code change proposal As Modified from the Floor (AMF) with a specific modification that has been previously offered from the floor and ruled in order by the Chairman during floor discussion (see Section 5.5.2) or has been offered by a member of the Committee and ruled in order by the Chairman during committee discussion (see Section 5.6), or
3. Disapprove the code change proposal from the floor (DF).

5.7.2 Assembly Floor Motion Consideration: On receipt of a second to the floor motion, the Moderator shall accept the motion and the second and notify the attendees that the motion will be considered in an online ballot following the hearing in accordance with Section 5.7.3. No additional testimony shall be permitted.

5.7.3 Online Assembly Floor Motion Ballot: Following the Committee Action Hearing, all assembly floor motions which received a second shall be compiled into an online ballot. The ballot will include:

1. The code change proposal as published.
2. The committee action and reason from the Committee Action Hearing.
3. The floor motion, including modifications which are part of the floor motion.
4. Access to the audio and video of the Committee Action Hearing proceedings.
5. Identification of the ballot period for which the online balloting will be open.

5.7.4 Eligible Online Assembly Motion Voters: All members of ICC shall be eligible to vote on online assembly floor motions. Each member is entitled to one vote, except that each Governmental Member Voting Representative may vote on behalf of its Governmental Member. Individuals who represent more than one Governmental Member shall be limited to a single vote. Application, whether new or updated, for ICC membership must be received by the Code Council 30 days prior to the first day of the Committee Action Hearing. The ballot period will not be extended beyond the published period except as approved by the ICC Board._

5.7.5 Assembly Action: A successful assembly action shall be a majority vote of the votes cast by eligible voters (see Section 5.7.4). A successful assembly action results in an automatic public comment to be considered at the Public Comment Hearing (see Section 7.4).

5.8 Report of the Committee Action Hearing: The results of the Committee Action Hearing, including committee action and reason, online assembly floor motion vote results and the total vote count for each assembly floor motion shall be posted on the ICC website not less than 60 days prior to the Public Comment Hearing, except as approved by the ICC Board.

6.0 Public Comments

6.1 Intent: The public comment process gives attendees at the Public Comment Hearing an opportunity to consider specific objections to the results of the Committee Action Hearing and more thoughtfully prepare for the discussion for public comment consideration. The public comment process expedites the Public Comment Hearing by limiting the items discussed to the following:

1. Consideration of items for which a public comment has been submitted; and
2. Consideration of items which received a successful assembly action.

6.2 Deadline: The deadline for receipt of a public comment to the results of the Committee Action Hearing_shall be announced at the Committee Action Hearing but shall not be less than 30 days subsequent to the availability of the Report of the Committee Action

Hearing (see Section 5.8).

6.3 Withdrawal of Public Comment: A public comment may be withdrawn by the public commenter at any time prior to public comment consideration of that comment. A withdrawn public comment shall not be subject to public comment consideration. If the only public comment to a code change proposal is withdrawn by the public commenter prior to the vote on the consent agenda in accordance with Section 7.5.4, the proposal shall be considered as part of the consent agenda. If the only public comment to a code change proposal is withdrawn by the public commenter after the vote on the consent agenda in accordance with Section 7.5.4, the proposal shall continue as part of the individual consideration agenda in accordance with Section 7.5.5, however the public comment shall not be subject to public comment consideration.

6.4 Form and Content of Public Comments: Any interested person, persons, or group may submit a public comment to the results of the Committee Action Hearing which will be considered when in conformance to these requirements. Each public comment to a code change proposal shall be submitted separately and shall be complete in itself. Each public comment shall contain the following information:

6.4.1 Public comment: Each public comment shall include the name, title, mailing address, telephone number and email address of the public commenter. Email addresses shall be published with the public comments unless the commenter otherwise requests on the submittal form.

If a group, organization, or committee submits a public comment, an individual with prime responsibility shall be indicated. If a public comment is submitted on behalf a client, group, organization or committee, the name and mailing address of the client, group, organization or committee shall be indicated. The scope of the public comment shall be consistent with the scope of the original code change proposal, committee action or successful assembly action. Public comments which are determined as not within the scope of the code change proposal, committee action or successful assembly action shall be identified as such. The public commenter shall be notified that the public comment is considered an incomplete public comment in accordance with Section 6.5.1 and the public comment shall be held until the deficiencies are corrected. A copyright release in accordance with Section 3.3.5.5 shall be provided with the public comment.

6.4.2 Code Reference: Each public comment shall include the code change proposal number.

6.4.3 Multiple public comments to a code change proposal. A proponent shall not submit multiple public comments to the same code change proposal. When a proponent submits multiple public comments to the same code change proposal, the public comments shall be considered as incomplete public comments and processed in accordance with Section 6.5.1. This restriction shall not apply to public comments that attempt to address differing subject matter within a code section.

6.4.4 Desired Final Action: In order for a public comment to be considered, the public comment shall indicate the desired Final Action as one of the following:

1. Approve the code change proposal As Submitted (AS), or
2. Approve the code change proposal As Modified by the committee modification published in the Report of the Committee Action Hearing (AM) or published in a public comment in the Public Comment Agenda (AMPC), or
3. Disapprove the code change proposal (D)

6.4.5 Supporting Information: The public comment shall include a statement containing a reason and justification for the desired Final Action on the code change proposal. Reasons and justification which are reviewed in accordance with Section 6.5 and determined as not germane to the technical issues addressed in the code change proposal or committee action may be identified as such. The public commenter shall be notified that the public comment is considered an incomplete public comment in accordance with Section 6.5.1 and the public comment shall be held until the deficiencies are corrected. The public commenter shall have the right to appeal this action in accordance with the policy of the ICC Board. A bibliography of any substantiating material submitted with a public comment shall be published with the public comment and the substantiating material shall be made available at the Public Comment Hearing. All substantiating material published by ICC is material that has been provided by the proponent and in so publishing ICC makes no representations or warranties about its quality or accuracy.

6.4.6 Online submittal: Each public comment and substantiating information shall be submitted online at the website designated by ICC. Additional copies may be requested when determined necessary by the Secretariat.

6.4.7 Submittal Deadline: ICC shall establish and post the submittal deadline for each cycle. The posting of the deadline shall occur no later than 120 days prior to the public comment deadline. Each public comment shall be submitted online at the website designated by ICC by the posted deadline. The submitter of a public comment is responsible for the proper and timely receipt of all pertinent materials by the Secretariat.

6.5 Review: The Secretariat shall be responsible for reviewing all submitted public comments from an editorial and technical viewpoint similar to the review of code change proposals (see Section 4.2).

6.5.1 Incomplete Public Comment: When a public comment is submitted with incorrect format, without the required information or judged as not in compliance with these Rules of Procedure, the public comment shall not be processed. The Secretariat shall notify the public commenter of the specific deficiencies and the public comment shall be held until the deficiencies are corrected, or the public comment shall be returned to the public commenter with instructions to correct the deficiencies with a final date set for receipt of the corrected public comment.

6.5.2 Duplications: On receipt of duplicate or parallel public comments, the Secretariat may consolidate such public comments for public comment consideration. Each public commenter shall be notified of this action when it occurs.

6.5.3 Deadline: Public comments received by the Secretariat after the deadline set for receipt shall not be published and shall not be considered as part of the public comment consideration. This deadline shall not apply to public comments submitted by the Code Correlation Committee. In order to correlate submitted public comments with action taken at the Committee Action Hearing on code change proposals that did receive a public comment, the Code Correlation Committee, in conjunction with staff processing of public comments, shall review the submitted public comments and submit the necessary public comments in order to facilitate the coordination of code change proposals. Such review and submittal shall not delay the posting of the Public Comment Agenda as required in Section 6.6.

6.6 Public Comment Agenda: The Committee Action Hearing results on code change proposals that have not received a public comment and code change proposals which

received public comments or successful assembly actions shall constitute the Public Comment Agenda. The Public Comment Agenda shall be posted on the ICC website at least 30 days prior the Public Comment Hearing. Any errata to the Public Comment Agenda shall be posted on the ICC website as soon as possible. Code change proposals and public comments which have not been published in the original posting or subsequent errata shall not be considered.

7.0 Public Comment Hearing

7.1 Intent: The Public Comment Hearing is the first of two steps to make a final determination on all code change proposals which have been considered in a code development cycle by a vote cast by eligible voters (see Section 9.0). The second step, which follows the Public Comment Hearing, is the Online Governmental Consensus Vote that is conducted in accordance with Section 8.0.

7.2 Date and Location: The date and location of the Public Comment Hearing shall be announced not less than 60 days prior to the date of the hearing.

7.3 Moderator: The ICC President shall appoint one or more Moderators who shall act as presiding officer for the Public Comment Hearing.

7.4 Public Comment Agenda: The Public Comment Consent Agenda shall be comprised of code change proposals which have neither a successful assembly action nor public comment. The agenda for public testimony and individual consideration shall be comprised of proposals which have a successful assembly action or public comment (see Section 6.1).

7.5 Procedure: *The Robert's Rules of Order* shall be the formal procedure for the conduct of the Public Comment Hearing except as these Rules of Procedure may otherwise dictate.

7.5.1 Open Hearing: The Public Comment Hearing is an open hearing. Any interested person may attend and participate in the floor discussion.

7.5.2 Agenda Order: The Secretariat shall publish a Public Comment Agenda for the Public Comment Hearing, placing individual code change proposals and public comments in a logical order to facilitate the hearing. The proponents or opponents of any code change proposal or public comment may move to revise the agenda order as the first order of business at the public hearing, or at any time during the hearing except while another proposal is being discussed. Preference shall be given to grouping like subjects together and for moving items back to a later position on the agenda as opposed to moving items forward to an earlier position. A motion to revise the agenda order is subject to a 2/3 vote of those present and voting.

7.5.3 Presentation of Material at the Public Comment Hearing: Information to be provided at the hearing shall be limited to verbal presentations. Each individual presenting information at the hearing shall state their name and affiliation, and shall identify any entities or individuals they are representing in connection with their testimony. Audio-visual presentations are not permitted. Substantiating material submitted in accordance with Section 6.4.5 and other material submitted in response to a code change proposal or public comment shall be located in a designated area in the hearing room.

7.5.4 Public Comment Consent Agenda: The Public Comment Consent Agenda (see Section 7.4) shall be placed before the assembly with a single motion for Final Action in accordance with the results of the Committee Action Hearing. When the motion has been seconded, the vote shall be taken with no testimony being allowed. A simple majority (50% plus one) based on the number of votes cast by eligible voters shall decide the motion. This action shall not be subject

to the Online Governmental Consensus Vote following the Public Comment Hearing (see Section 8.0).

7.5.5 Public Comment Individual Consideration Agenda: Upon completion of the Public Comment_Consent Agenda vote, all code change proposals not on the Public Comment Consent Agenda shall be placed before the assembly for individual consideration of each item (see Section 7.4).

7.5.6 Reconsideration: There shall be no reconsideration of a code change proposal after it has been voted on in accordance with Section 7.5.8.

7.5.7 Time Limits: Time limits shall be established as part of the agenda for testimony on all code change proposals at the beginning of each hearing session. Each person requesting to testify on a code change proposal shall be given equal time. In the interest of time and fairness to all hearing participants, the Moderator shall have limited authority to modify time limitations on debate. The Moderator shall have the authority to adjust time limits as necessary in order to complete the hearing agenda.

7.5.7.1 Time Keeping: Keeping of time for testimony by an individual shall be by an automatic timing device. Remaining time shall be evident to the person testifying. Interruptions during testimony shall not be tolerated. The Moderator shall maintain appropriate decorum during all testimony.

7.5.8 Discussion and Voting: Discussion and voting on code change proposals being individually considered shall be in accordance with the following procedures and the voting majorities in Section 7.6:

7.5.8.1 Proponent testimony: The Proponent of a public comment is permitted to waive an initial statement. The Proponent of the public comment shall be permitted to have the amount of time that would have been allocated during the initial testimony period plus the amount of time that would be allocated for rebuttal. Where a public comment is submitted by multiple proponents, this provision shall permit only one proponent of the joint submittal to waive an initial statement.

7.5.8.2 Points of Order: Any person participating in the public hearing may challenge a procedural ruling of the Moderator. A majority vote of ICC Members in attendance shall determine the decision.

7.5.8.3 Eligible voters: Voting shall be limited to eligible voters in accordance with Section 9.0.

7.5.8.4 Allowable Final Action Motions: The only allowable motions for Final Action are Approval as Submitted (AS), Approval as Modified by the committee (AM) or by one or more modifications published in the Public Comment Agenda (AMPC), and Disapproval (D).

7.5.8.5 Initial Motion: The code development committee action shall be the initial motion considered.

7.5.8.6 Motions for Modifications: Whenever a motion under consideration is for Approval as Submitted or Approval as Modified, a subsequent motion and second for a modification published in the Public Comment Agenda may be made (see Section 6.4.4). Each subsequent motion for modification, if any, shall be individually discussed and voted before returning to the main motion. A two-thirds majority based on the number of votes cast by eligible voters shall be required for a successful motion on all

modifications.

7.5.8.7 **Voting:** After dispensing with all motions for modifications, if any, and upon completion of discussion on the main motion, the Moderator shall then ask for the vote on the main motion. The vote on the main motion shall be taken electronically with the vote recorded and each vote assigned to the eligible voting member. If the motion fails to receive the majority required in Section 7.6, the Moderator shall ask for a new motion.

7.5.8.8 **Subsequent Motion:** If the initial motion is unsuccessful, a motion for either Approval as Submitted or Approval as Modified by one or more published modifications is in order. A motion for Disapproval is not in order. The vote on the main motion shall be taken electronically with the vote recorded and each vote assigned to the eligible voting member. If a successful vote is not achieved, Section 7.5.8.9 shall apply.

7.5.8.9 **Failure to Achieve Majority Vote at the Public Comment Hearing.** In the event that a code change proposal does not receive any of the required majorities in Section 7.6, the results of the Public Comment Hearing for the code change proposal in question shall be Disapproval. The vote count that will be reported as the Public Comment Hearing result will be the vote count on the main motion in accordance with Section 7.5.8.7.

7.5.8.10 **Public Comment Hearing Results:** The result and vote count on each code change proposal considered at the Public Comment Hearing shall be announced at the hearing. The results shall be posted and included in the Online Governmental Consensus Ballot (see Section 8.2).

7.6 **Majorities for Final Action:** The required voting majority for code change proposals individually considered shall be based on the number of votes cast of eligible voters at the Public Comment Hearing shall be in accordance with the following table:

Committee Action	**Desired Final Action**		
	AS	**AM/AMPC**	**D**
AS	Simple Majority	2/3 Majority	Simple Majority
AM	2/3 Majority	Simple Majority to sustain the Committee Action or; 2/3 Majority on each additional modification and 2/3 Majority on entire code change proposal for AMPC	Simple Majority
D	2/3 Majority	2/3 Majority	Simple Majority

8.0 Online Governmental Consensus Vote

8.1 **Public Comment Hearing Results:** The results from the Individual Consideration Agenda at the Public Comment Hearing (see Sections 7.5.5 and 7.5.8.10) shall be the basis for the Online Governmental Consensus Vote. The ballot shall include the voting options in accordance with the following table:

Committee Action	Public Comment Hearing result and Voting Majority	Online Governmental Consensus Ballot and Voting Majority	
AS	**AS:** Simple Majority	**AS:** Simple Majority	**D:** Simple Majority
	AMPC: 2/3 Majority	**AMPC:** 2/3 Majority	**D:** Simple Majority
	D: Simple Majority	**AS:** Simple Majority	**D:** Simple Majority
AM	**AS:** 2/3 Majority	**AS:** 2/3 Majority	**D:** Simple Majority
	AM: Simple Majority	**AM:** Simple Majority	**D:** Simple Majority
	AMPC: 2/3 Majority	**AMPC:** 2/3 Majority	**D:** Simple Majority
	D: Simple Majority	**AM:** Simple Majority	**D:** Simple Majority
D	**AS:** 2/3 Majority	**AS:** 2/3 Majority	**D:** Simple Majority
	AMPC: 2/3 Majority	**AMPC:** 2/3 Majority	**D:** Simple Majority
	D: Simple Majority	**AS:** 2/3 Majority	**D:** Simple Majority

8.2 **Online Governmental Consensus Ballot:** The ballot for each code change proposal considered at the Public Comment Hearing will include:

1. The Public Comment Hearing result and vote count.
2. The allowable Online Governmental Consensus Vote actions in accordance with Section 8.1.
3. Where the Public Comment Hearing result is As Submitted (AS) or Disapprove (D), the original code change proposal will be presented.
4. Where the Public Comment Hearing result is As Modified by the committee (AM) or As Modified by one or more Public Comments (AMPC), the original code change and approved modification(s) will be presented.
5. The committee action taken at the Committee Action Hearing.
6. ICC staff identification of correlation issues.
7. For those who voted at the Public Comment Hearing, the ballot will indicate how they voted.
8. An optional comment box to provide comments.
9. Access to the Public Comment Agenda which includes: the original code change, the report of the committee action and the submitted public comments.
10. Access to the audio and video of the Committee Action and Public Comment Hearing proceedings.
11. Identification of the ballot period for which the online balloting will be open.

8.3 **Voting process:** Voting shall be limited to eligible voters in accordance with Section 9.0. Eligible voters are authorized to vote during the Public Comment Hearing and during the Online Governmental Consensus Vote; however, only the last vote cast will be included in the final vote tabulation. The ballot period will not be extended beyond the published period except as approved by the ICC Board.

9.0 Eligible Final Action Voters

9.1 **Eligible Final Action Voters:** Eligible Final Action voters include ICC Governmental Member Voting Representatives and Honorary Members in good standing who have been confirmed by ICC in accordance with the Electronic Voter Validation System. Such

confirmations are required to be revalidated annually. Eligible Final Action voters in attendance at the Public Comment Hearing and those participating in the Online Governmental Consensus Vote shall have one vote per eligible voter on all Codes. Individuals who represent more than one Governmental Member shall be limited to a single vote.

9.2 **Applications:** Applications for Governmental Membership must be received by the ICC at least 30 days prior to the Committee Action Hearing in order for its designated representatives to be eligible to vote at the Public Comment Hearing or Online Governmental Consensus Vote. Applications, whether new or updated, for Governmental Member Voting Representative status must be received by the Code Council 30 days prior to the commencement of the first day of the Public Comment Hearing in order for any designated representative to be eligible to vote. An individual designated as a Governmental Member Voting Representative shall provide sufficient information to establish eligibility as defined in the ICC Bylaws. The Executive Committee of the ICC Board, in its discretion, shall have the authority to address questions related to eligibility.

10.0 Tabulation, certification and posting of results

10.1 **Tabulation and Validation:** Following the closing of the online ballot period, the votes received will be combined with the vote tally at the Public Comment Hearing to determine the final vote on the code change proposal. ICC shall retain a record of the votes cast and the results shall be certified by a validation committee appointed by the ICC Board. The validation committee shall report the results to the ICC Board, either confirming a valid voting process and result or citing irregularities in accordance with Section 10.2.

10.2 **Voting Irregularities:** Where voting irregularities or other concerns with the Online Governmental Consensus Voting process which are material to the outcome or the disposition of a code change proposal(s) are identified by the validation committee, such irregularities or concerns shall be immediately brought to the attention of the ICC Board. The ICC Board shall take whatever action necessary to ensure a fair and impartial Final Action vote on all code change proposals, including but not limited to:

1. Set aside the results of the Online Governmental Consensus Vote and have the vote taken again.
2. Set aside the results of the Online Governmental Consensus Vote and declare the Final Action on all code change proposals to be in accordance with the results of the Public Comment Hearing.
3. Other actions as determined by the ICC Board.

10.3 **Failure to Achieve Majority Vote:** In the event a code change proposal does not receive any of the required majorities for Final Action in Section 8.0, Final Action on the code change proposal in question shall be Disapprove.

10.4 **Final Action Results:** The Final Action on all code change proposals shall be published as soon as practicable after certification of the results. The results shall include the Final Action taken, including the vote tallies from both the Public Comment Hearing and Online Governmental Consensus Vote, as well the required majority in accordance with Section 8.0. ICC shall maintain a record of individual votes for auditing purposes, however, the record shall not be made public. The exact wording of any resulting text modifications shall be made available to any interested party.

11.0 Code Publication

11.1 **Next Edition of the Codes:** The Final Action results on code change proposals shall be the basis for the subsequent edition of the respective Code.

11.2 **Code Correlation:** The Code Correlation Committee is authorized to resolve technical or editorial inconsistencies resulting from actions taken during the code development process by making appropriate changes to the text of the affected code. Any such changes to a Code shall require a 2/3 vote of the Code Correlation Committee. Technical or editorial inconsistencies not resolved by the Code Correlation Committee shall be forwarded to the ICC Board for resolution.

12.0 Appeals

12.1 **Right to Appeal:** Any person may appeal an action or inaction in accordance with Council Policy 1 Appeals. Any appeal made regarding voter eligibility, voter fraud, voter misrepresentation or breach of ethical conduct must be supported by credible evidence and must be material to the outcome of the final disposition of a code change proposal(s).

The following actions are not appealable:

1. Variations of the results of the Public Comment Hearing compared to the Final Action result in accordance with Section 10.4.
2. Denied requests to extend the voter balloting period in accordance with Sections 5.7.4 or 8.3.
3. Lack of access to the internet based online collaboration and voting platform to submit a code change proposal, to submit a public comment or to vote.
4. Code Correlation Committee changes made in accordance with Section 11.2.

13.0 Violations

13.1 **ICC Board Action on Violations:** Violations of the policies and procedures contained in this Council Policy shall be brought to the immediate attention of the ICC Board for response and resolution. Additionally, the ICC Board may take any actions it deems necessary to maintain the integrity of the code development process.

WITHDRAWN CODE CHANGE PROPOSALS

The following code change proposals were withdrawn subsequent to the Committee Action Hearings:

P72-15
P74-15
P200-15
P201-15
M7-15

Code change proposals withdrawn prior to the end of the committee action hearings are indicated as such in the 2015 Report of Committee Action Hearings.

2015 PUBLIC COMMENT HEARINGS SCHEDULE

September 30 – October 5, 2015
Long Beach Convention Center
Long Beach, CA

The upcoming 2015 ICC Annual Conference, Group A Public Comment Hearings and Expo will be utilizing the same schedule as last year. The Annual Business meeting will be on Monday, September 28th and the conference activities will conclude on Tuesday, September 29th with the Annual Banquet. Click here for the conference schedule.

The Public Comment Hearings will start on Wednesday, September 30th at 8:00 am. The schedule anticipates that the hearings will be completed no later than 7:00 pm on Monday, October 5th. This may require adjustments to the daily start/end times based on hearing progress. As was done for the Committee Action Hearings, the codes are scheduled with the Plumbing/Mechanical/Fuel Gas (PMG) codes followed by the Building related codes, starting with the IPMZC.

Unless noted by "Start no earlier than 11:00 am", the hearing on each code will begin immediately upon completion of the hearing for the prior code. This includes moving the code up or back from the day indicated based on hearing progress. Actual start times for each code cannot be stipulated due to uncertainties in hearing progress. Be sure to review the tentative hearing order in the Public Comment Agenda (to be posted by August 28th) for code changes that are heard with a code other than that indicated by the code change prefix (see note 4).

Wednesday **September 30**	**Thursday** **October 1**	**Friday** **October 2**	**Saturday** **October 3**	**Sunday** **October 4**	**Monday** **October 5**
Start 8 am **ISPSC** **IFGC** **IPC/IPSDC** **IRC – P** **IRC - M** **End 7 pm**	**Start 8 am** **IRC – M** **IMC** **IPMZC (Start no earlier than 11:00 am)** **IEBC** **End 7 pm**	**Start 8 am** **IEBC** **IBC – E** **IBC – FS** **End 7 pm**	**Start 8 am** **IBC – FS** **IBC - G** **End 7 pm**	**Start 10 am** **IBC – G** **End 7 pm**	**Start 8 am** **IBC - G** **Finish 7 pm**

SEE NEXT PAGE FOR NOTES AND LIST OF CODES

Hearing Schedule Notes:
1. Daily start and end hearing times are subject to change based on progress.

2. Mid-morning, lunch and mid-afternoon breaks to be announced. The hearings are scheduled without a dinner break.

3. Due to the uncertainties in the hearing process, the start time indicated as “Start no earlier than 11 am" is conservatively estimated and is not intended to be a scheduled target.

4. Consult the hearing order for code changes to be heard with a code other than the code under which the code change is designated.

Codes: (be sure to consult the Cross Index of Proposed Code Changes with Public Comments for changes heard with a different code)

IBC – E: International Building Code – Egress provisions

IBC – FS: International Building Code – Fire Safety provisions

IBC – G: International Building Code – General provisions

IEBC: Non-structural provisions in the International Existing Building Code

IFGC: International Fuel Gas Code

IMC: International Mechanical Code

IPC/IPSDC: International Plumbing/Private Sewage Disposal Code (no public comments received to the IPSDC)

IPMZC: International Property Maintenance and Zoning Codes (no code changes received to the IZC)

IRC – M: Mechanical provisions in the IRC

IRC – P: Plumbing provisions in the IRC

ISPSC: International Swimming Pool and Spa Code

TENTATIVE HEARING ORDER
FOR EACH INDIVIDUAL CONSIDERATION AGENDA

Note: Code changes to be heard out of numerical order or to be heard with a different code designation are indented. Be sure to review the cross index on page xxxvi for code change which affect codes other than those under their respective code change number prefix.

ISPSC
(See page 1)
SP2-15
SP4-15
SP9-15
SP10-15
SP11-15
SP12-15
SP18-15
SP19-15
SP20-15
SP25-15
SP30-15
SP32-15

IFGC
(See page 51)
FG9-15
FG10-15
FG11-15
FG12-15
FG13-15
FG14-15
FG20-15
FG22-15
FG27-15
FG30-15
FG34-15
FG35-15
FG38-15
FG39-15

IPC
(See page 94)
P2-15
P7-15
P9-15
P17-15
P20-15 Part I
P20-15 Part II
P25-15
P30-15
P31-15
P34-15
P36-15 Part I
P37-15
P39-15
    P40-15
    P43-15
P41-15
P44-15
P47-15
P53-15 Part I
P55-15 Part I
P59-15
P60-15
P63-15
P66-15
P77-15
P80-15
P82-15 Part I
P82-15 Part II
P93-15 Part I
P94-15
P102-15
P105-15
P108-15
    P110-15
P109-15 Part I
P109-15 Part II
P115-15 Part I
P115-15 Part II
P117-15 Part I
P122-15
P130-15
P135-15 Part I
P136-15
P139-15
P144-15
P145-15
P147-15
P148-15
P156-15
P157-15
P158-15
P162-15 Part I
P162-15 Part II
P167-15
P169-15
P175-15
P178-15 Part I
P178-15 Part II
P199-15
P202-15 Part I
P205-15 Part I
P214-15
P215-15 Part I
P215-15 Part II
P217-15
P220-15 Part I
P221-15 Part I
P231-15
P233-15
P234-15
P243-15
P245-15

IRC - PLUMBING
(See page 349)
RP1-15
RP2-15
RP6-15
RP19-15
    P15-15 Part II
    P101-15 Part II
    P150-15 Part II

IRC - MECHANICAL
(See page 372)
RM8-15
RM9-15
RM10-15
    M41-15 Part II
RM13-15
RM14-15
RM17-15
RM20-15
RM24-15
RM25-15
RM26-15
RM27-15
RM28-15
RM29-15
RM30-15
RM32-15
RM36-15
RM37-15
RM38-15
RM40-15
RM53-15
RM54-15

IMC
(See pages 447)
M9-15
M10-15
M19-15
M20-15
M21-15
M23-15
M31-15
M32-15
M34-15
M35-15
M36-15
M39-15
M40-15
M42-15
M43-15
M44-15
M46-15
M50-15
M51-15
M56-15
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M64-15
M65-15
M71-15

G29-15
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G210-15
G209-15
G213-15
G214-15
G215-15
G218-15
G219-15
G221-15
G223-15
G226-15
G228-15
G232-15
G236-15

2015 ICC CODE DEVELOPMENT CYCLE
CROSS INDEX OF PROPOSED CODE CHANGES
ON THE PUBLIC COMMENT AGENDA FOR
INDIVDUAL CONSIDERATION

Some of the proposed code changes include sections that are outside of the scope of the chapters or the code listed in the table of 2015-2017 Staff Secretaries on page xi. This is done in order to facilitate coordination among the International Codes which is one of the fundamental principles of the International Codes.

Listed in this cross index are proposed code changes that include sections of codes or codes other than those listed on page ix. For example, IBC Section 2602.1 is proposed for revision in code change G22-15, which was heard by the IBC-General Committee. This section of the IBC is typically the responsibility of the IBC-Fire Safety. It is therefore identified in this cross index. Another example is Section 607.5.2 of the International Mechanical Code. The International Mechanical Code is normally maintained by the IMC Committee, but Section 607.5.2 will be considered for revision in proposed code change FS112-15 which was on the IBC-Fire Safety Committee agenda. In some instances, there are other subsections that are revised by an identified code change that is not included in the cross index.

This information is provided to assist users in locating all of the proposed code changes that would affect a certain section or chapter. For example, to find all of the proposed code changes that would affect Chapter 4 of the IBC, review the proposed code changes in the portion of the monograph for the IBC-General Code Development Committee (listed with a G prefix) then review this cross reference for Chapter 4 of the IBC for proposed code changes published in other code change groups. While care has been taken to be accurate, there may be some omissions in this list.

Letter prefix: Each proposed change number has a letter prefix that will identify where the proposal is published. The letter designations for proposed changes and the corresponding publications are as follows:

PREFIX	PROPOSED CHANGE GROUP (see monograph table of contents for location)
E	International Building Code - Egress
EB	International Existing Building Code
FG	International Fuel Gas Code
FS	International Building Code - Fire Safety
G	International Building Code – General
M	International Mechanical Code
P	International Plumbing Code
PSD	International Private Sewage Disposal Code
PM	International Property Maintenance Code
RM	International Residential Code - Mechanical
RP	International Residential Code - Plumbing
S	International Building Code – Structural
SP	International Swimming Pool and Spa Code

International Building Code	
Section #	**Code Change #**
Chapter 2	
Air barrier	FS154
Continuous air barrier	FS154
Control coating	FS127
Fire curtain	FS102 Part I, FS102 Part II
Insulated vinyl siding	FS156
Interior radiation control coating	FS127
Projection	FS11
Chapter 4	
404.6	FS102 Part II
Chapter 7	
702.1	G22
722.1	G22
Chapter 8	
802.1	G22
Chapter 9	
902.1	G22
903.2.8.4	G33
909.20.6.1	G117
913.2.2	G117
Chapter 10	
1002.1	G22
1004.5	G131
Chapter 11	
1102.1	G22
Chapter 14	
1402.1	G22
1406.3	G180
Chapter 15	
1502.1	G22
Chapter 16	
1602.1	G22

1609.2	G22
1612.2	G22
1613.2	G22
1615.2	G22
Chapter 17	
1702.1	G22
Chapter 18	
1802.1	G22
Chapter 21	
2102.1	G22
Chapter 23	
2302.1	G22
2304.11 through 2304.11.4.2	G179
Chapter 24	
2402.1	G22
Chapter 25	
2502.1	G22
Chapter 26	
2602.1	G22
Chapter 29	
2902.1	P27
T2902.1	P30, P31, P34, P35
2902.1.1	P35
2902.1.2 (New)	P37, P39
2902.1.2	P40
2902.2	P41, P43, P44
2902.2.2 (New)	P43
2902.3	P45
2902.3.1	P43
2902.4	P38, P43
2902.4.6	P59, P60
INTERNATIONAL FIRE CODE	
Chapter 6	
604.2.1 (New)	G125
INTERNATIONAL MECHANICAL CODE	
Chapter 6	
607.2.3 (New)	FS106
607.5.2	FS112

607.5.4	FS118
607.5.5	FS115
INTERNATIONAL RESIDENTIAL CODE	
Chapter 3	
R303.5	RM20
R303.5.1	RM20
R303.5.2 (New)	RM20
Chapter 25	
P2503.7	P20 Part II
Chapter 27	
P2704	P53 Part II
P2704.1	P53 Part II
P2713.1	P55 Part II
P2713.3	P82 Part II
P2725 (New)	P162 Part II
P2726.1 (New)	P162 Part II
Chapter 28	
P2804.6.1	P93 Part II
Chapter 29	
P2906.2.6	P162 Part II
Chapter 30	
P3005.1.6	P178 Part II
Chapter 31	
P3103.1	P215 Part II
P3103.1.1 (New)	P215 Part II
P3103.1.2 (New)	P215 Part II
P3103.1.3 (New)	P215 Part II
P3103.1.4 (New)	P215 Part II
P3103.6	P215 Part II

2015 PUBLIC COMMENTS TO THE PROPOSED CHANGES TO THE 2015 INTERNATIONAL CODES

SP2-15
202 (New),

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Add new definition as follows:

SECTION 202 DEFINITIONS

ACCESS (TO). That which enables a fixture, appliance or equipment to be reached by ready access or by a means that first requires the removal or movement of a panel, door similar obstruction (see "Ready access").

SECTION 202 DEFINITIONS

READY ACCESS. That which enables a fixture, appliance or equipment to be directly reached without requiring the removal or movement of any panel, door or similar obstruction and without the use of a portable ladder, step stool or similar device.

Reason: There are several locations where these terms are used in the ISPSC however, without these definitions, the true meaning of the terms are not clear. These definitions are identical to the IMC definitions for these terms. The IMC has scoping control of these defined terms where they are used in all codes except for the IRC.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 108.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP2-15 : 202-ACCESS (TO) (New)-SNYDER4141

Public Hearing Results

Committee Action: Disapproved

Committee Reason: These definitions conflict with how these terms are used in the National Electric Code and in APSP-15.

Assembly Motion: As Submitted
Online Vote Results: Successful

Support: 53.57% (75) Oppose: 46.43% (65)

Assembly Action : Approved as Submitted

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action

requests Approve as Submitted.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Approve as Submitted was successful by a vote of 53.57% (75) to 46.43% (65) by eligible members online during the period of May 14 - May 28, 2015.

SP2-15

SP4-15
202

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

SECTION 202 DEFINITIONS

SWIMOUT. An underwater seat area that is placed completely outside of the ~~perimeter shape~~ diving envelope of ~~the~~ a pool. ~~Where located at the deep end, swimouts are permitted to be used as the deep-end means of entry or exit to the pool.~~

Reason: A swimout is not required to be outside of the perimeter shape of a pool. Many times they are located on those areas but they are not required to be. This revised wording agrees with Figure 322.2.
The second sentence is a requirement and requirements should not be in code defintions. Requirments belong in the code text (Chapters 3 though 10). There was no need to add this requirement to the code as it is already in Sections 411.1.3 and 809.2

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 13.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP4-15 : 202-SWIMOUT-SNYDER4143

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The form of the diving water envelope allows elements such as swimouts to be anywhere in a pool including the deep end , just as long as the element does not encroach on the diving water envelope.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Swimming Pool and Spa Code

SECTION 202 DEFINITIONS

SWIMOUT. An underwater seat area that is placed completely outside of the diving envelope of a pool.– Where located at the deep end, swimouts are permitted to be used as the deep-end means of entry or exit to the pool.

Commenter's Reason: A swimout can be used for exit and entry into a pool. The public comment brings the deleted last sentence back into this definition.

SP4-15

SP9-15

305.2.4.1 (New), 305.2.10

Proposed Change as Submitted

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Swimming Pool and Spa Code

Add new text as follows:

305.2.4.1 **Setback for mesh fences** The location of a mesh fence from the inside of the fence to the nearest edge of the water of a pool or spa shall be not less than 20 inches (508 mm).

Delete without substitution:

~~**305.2.10 Poolside barrier setbacks.** The pool or spa side of the required barrier shall be not less than 20 inches (508 mm) from the water's edge.~~

Reason: This proposal clarifies the original intent of Section 305.2.10, which was to apply only to mesh fences, which are removable child barriers otherwise known as baby barriers. The setback requirement was never intended to apply to walls, screen enclosures, other types of fencing, etc. The way the code is currently written it could be construed as applying to all types of barriers and not just the mesh fencing as intended. Therefore, this proposal simply deletes Section 305.2.10 and instead places the setback requirement as a subsection of the mesh fencing section, so it is applied to only that type of barrier fence.

Bibliography: See 2007 Florida Building Code, Code Commentary for Section R4101.17.1.13 which clearly provides that the intent of the setback is only for mesh fencing.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction, as it simply clarifies the original intent of a code provision.

SP9-15 : 305.2.4.1 (New)-HATFIELD5780

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The intent of theis proposals is good but the langauge needs improved to make it clear that the mesh fence is a baby fence and not the type of temporary mesh fence that a contractor might use for protecting a work area.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org) requests Approve as Submitted.

Commenter's Reason: The committee's concern was that this type of mesh fence would also included the type of plastic fencing used to keep people out of a construction site and not just one that is considered a baby barrier around a swimming pool. However, what was not explained at the first hearing is that possibility does not exist due to the fact this new subsection (which already exists in the ISPSC but is simply being moved to the correct place in the code from where it currently resides, per the reasoning provided in the original proposal) falls under section 305.2.4, titled "Mesh fence as a barrier." Therefore, this new subsection 305.2.4.1 falls within section 305.2.4, which details what requirements the mesh fence must meet in order to be considered a barrier around a pool. Therefore, there is no way for this to be misapplied to a temporary plastic "construction" fence because those type of fences simply would not be able to meet the requirements listed under section 305.2.4.

It is impertative this proposal be adopted because it clarifies the original intent of Section 305.2.10, which was to apply only to mesh fences, which are removable child barriers otherwise known as baby barriers. The setback requirement was never intended to apply to walls, screen enclosures, other types of fencing, etc. The way the code is currently written it could be construed as applying to all types of barriers and not just the mesh fencing as intended. Therefore, this proposal simply deletes Section 305.2.10 and instead places the setback requirement as a subsection of the mesh fencing section, so it is applied to only that type of barrier fence. See 2007 Florida Building Code, Code Commentary for Section R4101.17.1.13 which clearly provides that the intent of the setback is only for mesh fencing.

SP9-15

SP10-15
305.2.10 (New)

Proposed Change as Submitted

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL (jhatfield@apsp.org)

2015 International Swimming Pool and Spa Code

Add new text as follows:

305.2.10 Flexible plastic netting Flexible plastic mesh fencing and netting shall not be used for a required barrier. This section shall not apply to factory-manufactured mesh fence assemblies made and installed in accordance with Section 305.2.4.

Reason: This new section is being proposed to clarfiy that certain plastic fencing is not intended for use as a pool barrier. For example, the plastic fencing one uses at construction sites to warn people to stay out of the area could possibly be argued as meeting the barrier provisions if this new section is not added. This is possible due to the fact the vertical post spacing could be 15 to 20 feet, the "holes" could meet the width maximum and the top edge is supported by a tension wire. However, the "holes" could be widened by a foot being inserted and weight on the top could pull it down to less than 48 inches above grade. Further, the bottom of this type of fence rarely is supported by a tension wire; therefore, it could be possible for someone to push under it and get into the pool. All of these factors represent a safety concern if this type of product were used to meet the barrier requirements, which is why this new section is needed to prevent that from happening. However, the second sentence is needed to clarfiy this is NOT intended to eliminate the mesh fencing that is manufactured specifically as a "baby barrier" around a pool, under Section 305.2.4.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction, as it just clarifies that a certain type of plastic netting that was never intended to be a pool barrier iand s not, in fact, a pool barrier.

SP10-15 : 305.2.10 (New)-HATFIELD5487

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The term "netting" could be confusing. This proposal should be cooordinated with what proposal SP9 was trying to accomplish and brought back in Public Comment.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Swimming Pool and Spa Code

305.2.10 Flexible plastic ~~netting~~ fencing Flexible plastic ~~mesh~~ fencing ~~and netting~~ shall not be used for a required barrier. This section shall not apply to factory-manufactured mesh fence assemblies made and installed in accordance with Section 305.2.4.

Commenter's Reason: This public comment addresses the committees concerns by removing the wording "netting" and "mesh" to ensure it is not confused with any other type of fencing. This section is being added to make clear that flexible plastic fencing that is used around construction sites are not used to meet the pool barrier requirements. The proposal clearly distinguishes this type of fencing from the mesh fencing that is allowed in Section 305.2.4, the latter must follow a series of requirements laid out within Section 305.2.4 in order to be used as a proper pool barrier.

SP10-15

SP11-15
305.3

Proposed Change as Submitted

Proponent : Timothy Pate, , City and County of Broomfield, representing the Colorado Chapter of ICC Code Change Committee, representing City and County of Broomfield (tpate@broomfield.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

305.3 Gates. Access gates shall comply with the requirements of Sections 305.3.1 through 305.3.3 and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the pool or spa, shall be self-closing and shall have a self-latching device.

Where the combined occupant load of the pool deck area and the pool water area is calculated to be 50 persons or more based on the swimming pool occupant load factors in Table 1004.1.2 of the International Building Code, not less than two pedestrian access gates shall serve as the means of egress gates for the combined area. The means of egress gates shall be separated in accordance with Section 1007.1.1 of the IBC. Where more than one means of egress gate from the area is required, all means of egress gates from the area shall have panic hardware installed in accordance with Section 1010.1.10 of the IBC.

Reason: This proposed change is to add language that would require checking the occupant load using IBC Table 1004.1.2 which has pool and pool deck listed as a function of space. Once the space exceeds the 49 it would need exits which would match what is done for a building or space within a building. There has been confusion as to how exterior pools are treated in regards to means of egress since they are not technically an occupancy. I do not believe the best way to solve this is to change language to call these spaces occupancies since you would then have to also use Chapter 29 to determine required numbers of plumbing fixtures. I believe some building departments use IBC section 1004.5 for these outdoor areas but this section says you need means of egress but the definition of means of egress only talks to occupied portions of buildings or structures.
This leads to a lot of confusion for building departments and designers. I feel that adding this specific language to the swimming pool barrier section will help clear up this confusion.

Cost Impact: Will increase the cost of construction
This would increase the cost in the jurisdictions that have not interpretated this section to require the panic hardware already.

SP11-15 : 305.3-PATE3935

Public Hearing Results

Committee Action: Disapproved

Committee Reason: With where this sectionis placed, the new langauge would apply to both residiential and public pools, These requirements are only necessary for public pools. The new language seems to imply that only gates could be used for egress purposes. What about doors? All this migh already be covered by the IBC.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Timothy Pate, representing City and County of Broomfield (tpate@broomfield.org) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Swimming Pool and Spa Code

305.8 **Means of egress** Outdoor public pools provided with barriers shall have means of egress as required by Chapter 10 of the *International Building Code*. Where the combined occupant load of the pool deck and the pool water area is calculated to be 50 or more based on the swimming pool occupant load factors in Table 1004.1.2 of the *International Building Code*, the number of exit doors or gates shall comply with the requirements of Section1006 of the *International Building Code* and shall be separated in accordance with Section 1007.1.1 of the *International Building Code*. Such doors or gates shall comply with the requirements of Section 1010 of the *International Building Code*.

Commenter's Reason: I am proposing this modification based on the excellent comments made by the committee. This revision will add a new section which will deal with general means of egress requirements out of the outdoor public pool and pool deck areas.

This new section will only apply to public pools and not for private pools.

This new section will also give requirements for means of egress for either exit paths that extend out through barrier gates or through buildings that are attached to pool deck area and are a part of the barrier.

IBC section 1007.1.1 requires that the required exits be separated by at least 50% of the longest diagonal dimension.

IBC Section is titled "Doors, Gates, and Turnstiles" and has all requirements for sizes (widths), hardware, swings, landings, etc.

SP11-15

SP12-15

305.3, 305.3.3, 305.4

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

305.3 Gates. Access gates shall comply with the requirements of Sections 305.3.1 through 305.3.3 and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the pool or spa, shall be self-closing and shall have a self-latching device.

305.3.3 Latches. For *residential* pools, the operable parts of the latch release for the self-latching device shall be located at 54 inches (1372 mm) maximum above the finished floor or ground. Where the latch release ~~mechanism~~ of the self-latching device is located less than 54 inches (1372 ~~mm~~) ~~from grade~~ above the finished floor or ground, the latch release ~~mechanism~~ shall be located on the pool or spa side of the gate not less than 3 inches (76 mm) below the top of the gate, and the gate and barrier shall not have openings greater than ~~1/2~~ 1/2 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism. For *public pools*, for latches on gates along the accessible route, the operable parts of the self-latching devices shall comply with Section 1010.1.9.2 of the *International Building Code*.

305.4 Structure wall as a barrier. Where a wall of a dwelling or structure serves as part of the barrier and where doors or windows provide direct access to the pool or spa through that wall, one of the following shall be required:

1. Operable windows having a sill height of less than 48 inches (1219 mm) above the indoor finished floor and doors shall have an alarm that produces an audible warning when the window, door or their screens are opened. The alarm shall be *listed* and *labeled* as a water hazard entrance alarm in accordance with UL 2017. In ~~dwellings or structures~~ dwelling units not required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located 54 inches (1372 mm) or more above the finished floor. In ~~dwellings or structures~~ dwelling units required to be Accessible units, Type A units or Type B units, or in structures where the swimming pool is required to be accessible, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1219 mm) above the finished floor.
2. A *safety cover* that is *listed* and *labeled* in accordance with ASTM F 1346 is installed for the pools and spas.
3. An *approved* means of protection, such as self-closing doors with self-latching devices, is provided. Such means of protection shall provide a degree of protection that is not less than the protection

afforded by Item 1 or 2.

Reason: The intent of the changes is to coordinate the locking arrangements on gates and doors for public pools with the allowances worked out in the IBC as part of the coordination with ADA. The definition for public pool and residential pool would determine where accessibility is appropriate.

The 2015 IBC reads as follows:
IBC 1010.1.9.2 Hardware height. Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor. Locks used only for security purposes and not used for normal operation are permitted at any height.
Exception: Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to have operable parts of the release of latch on self-latching devices at 54 inches (1370 mm) maximum above the finished floor or ground, provided the self-latching devices are not also self-locking devices operated by means of a key, electronic opener or integral combination lock.

IBC 1109.13 Controls, operating mechanisms and hardware. Controls, operating mechanisms and hardware intended for operation by the occupant, including switches that control lighting and ventilation and electrical convenience outlets, in accessible spaces, along accessible routes or as parts of accessible elements shall be accessible.

Exceptions:

1. Operable parts that are intended for use only by service or maintenance personnel shall not be required to be accessible.
2. Electrical or communication receptacles serving a dedicated use shall not be required to be accessible.
3. Where two or more outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one outlet shall not be required to be accessible.
4. Floor electrical receptacles shall not be required to be accessible.
5. HVAC diffusers shall not be required to be accessible.
6. Except for light switches, where redundant controls are provided for a single element, one control in each space shall not be required to be accessible.
7. Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to comply with Section 1010.1.9.2.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is CTC/PMG Proposal Item 4.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP12-15 : 305.3.3-SNYDER4147

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The introduction of "residential" and "public" in this section

adds confusion as to the required latch height for gates for pools and spas. Some pools are "residential" such as a pool at an apartment complex. Accessibility requirements really need to be covered in the public pools chapter.

Assembly Motion: **As Submitted**
Online Vote Results: **Failed**
Support: 42.66% (61) Oppose: 57.34% (82)
Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: The Committee's statement about pools and spas for apartment complexes being *residential* pools is incorrect. Those are *public* pools.

Public Comment 2:

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Swimming Pool and Spa Code

305.3.3 Latches. ~~For *residential* pools, the operable~~ Operable parts of the latch release for the self-latching device that is located on the side of the gate away from the pool or spa shall be located not less than 54 inches (1372 mm) above the finished floor or ground, whichever is higher. For public pools and public spas, such latch release shall be located at 54 inches (1372 mm) ~~maximum~~ above the finished floor or ground , whichever is higher. ~~Where~~ For residential pools and residential spas, where the latch release of the self-latching device is located on the pool or spa side of the gate and is less than 54 inches (1372) above the finished floor or ground, the latch release shall be located ~~on the pool or spa side of the gate~~ not less than 3 inches (76 mm) below the top of the gate, and the gate and barrier shall not have openings greater than 1/2 inch (12.7 mm) within 18 inches (457 mm) of the latch release ~~mechanism. For *public pools*, for latches on gates along the accessible route, the operable parts of the self-latching devices shall comply with Section 1010.1.9.2 of the *International Building Code*~~.

Commenter's Reason: This public comment makes changes to the latch subsection to ensure that the latch is not under 54 inches, as this should not be permitted for safety reasons. All other existing barrier codes and standards require a minimum 54 inches from the ground or floor to ensure a child cannot access the pool or spa without adult supervision.

SP12-15

SP18-15

311.3, 311.3.1 (New), 311.3.2 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

311.3 Water velocity. The water velocity in suction and return ~~lines~~ piping shall comply with either Section 311.3.1 or 311.3.2. Pool piping sizes shall be chosen so that at the rated flows for the filtering and cleaning equipment, the operating head of the pump is not ~~exceed 8 feet (2.4 m) per second~~ exceeded. The water velocity in ~~suction~~ copper and copper alloy piping shall ~~be as required by Section 310.~~ not exceed 8 fps (2.4 mps).

311.3.1 Public pool and spas. For *public* pools and spas, suction piping water velocity shall not exceed 6 fps (1.8 mps), return piping water velocity shall not exceed 10 fps (3.0 mps) and water velocity through grates shall not exceed 1.5 fps (0.5 mps) except where compliance with Section 310 further limits the water velocities in piping and through grates.

311.3.2 Residential pool and spas. For *residential* pools and spas, the water velocity in suction piping and return piping shall not exceed 8 fps (2.4 mps) except where compliance with Section 310 further limits the water velocities in suction and return piping.

Reason: APSP 7-2013 (which is referenced by the 2015 ISPSC) has some different requirements (than the previous edition) with respect to sizing of circulation piping. The ISPSC needs to be updated and clarified so that there is not confusion when comparing the requirements of APSP and the code.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC). The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 8.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, in some cases, the suction piping might have to be larger in order to control the velocity through the suction outlet grate. The requirement for larger piping will have additional cost in both material and labor.

SP18-15 : 311.3-SNYDER4154

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Th proposed text would make the code inconsistent with what the APSP standard indicates for maximum flow velocity through grates.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Swimming Pool and Spa Code

311.3 Water velocity. The water velocity in suction and return piping shall comply with either Section 311.3.1 or 311.3.2~~. Pool piping sizes shall be chosen so that at the rated flows for the filtering and cleaning equipment, the operating head of the pump is not exceeded~~. The water velocity in copper and copper alloy piping shall not exceed 8 fps (2.4 mps).

311.3.1 Public pool and spas. For *public* pools and spas, suction piping water velocity shall not exceed 6 fps (1.8 mps), return piping water velocity shall not exceed ~~10~~ 8 fps (~~3.0~~ 2.4 mps) and water velocity through grates shall ~~not exceed 1.5 fps (0.5 mps) except where compliance~~ comply with ~~Section 310 further limits the water velocities in piping and through grates~~ APSP-16.

Commenter's Reason: This public comment addresses the committees concerns with the original proposal by making changes to ensure consistency with APSP standards. Specifically it ensures that 8 fps is provided as the maximum water velocity of the return piping to ensure consistency with energy efficiency standards. Further, the reference to APSP-16 is provided because this is the standard manufacturers of drain covers must test to, which results in the water velocity limit expressed in gallons per minute. Large, public pool grates, in practice, are designed to 1.5 fps, however it is not required within APSP-16 and therefore, should be removed. Section 310 refers you to APSP 7, which then refers you to APSP 16 on water velocity; therefore, this proposal sends the user directly to APSP-16 when addressing water velocity.

SP18-15

SP19-15

313.7, 202 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

313.7 Emergency shutoff switch. An emergency shutoff switch shall be provided to disconnect all power to recirculation and jet system pumps and air blowers. Emergency shutoff switches shall be~~:~~ provided with ready access~~;~~ , be located within sight of the pool or spa~~;~~ , and be located not less than 5 feet (~~1524 mm~~ 1524mm) horizontally from ~~the~~ an inside wall~~s~~ of the pool or spa~~.~~ that is served by the pumps and blowers controlled by the switch.

> **Exception:** *Onground storable pools*, permanent inground *residential* swimming pools, *residential* spas and *residential* water features.

Add new definition as follows:

SECTION 202 DEFINITIONS

READY ACCESS. That which enables a fixture, appliance or equipment to be directly reached without requiring the removal or movement of any panel, door or similar obstruction and without the use of a portable ladder, step stool or similar device.

Reason: The emergency shutoff switch should be out in the open and not behind a panel so it is obvious where the switch is for fast access. Using the term "ready access" along with the IMC definition, will make this clear.
The definition is identical to the IMC definition for this term. The IMC has scoping control of this defined term where it is used in all codes except for the IRC.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 107.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP19-15 : 313.7-SNYDER4155

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Exterior (outdoor) switches used for this purpose typically have a protective cover that could be construed as not providing ready access. The new definition indicates that a "panel door" cannot be in the way of the switch. Also, the definition was already disapproved in SP2.

Assembly Motion: As Submitted

Online Vote Results: Failed

Support: 29.66% (43) Oppose: 70.34% (102)

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Swimming Pool and Spa Code

313.7 Emergency shutoff switch. An emergency shutoff switch shall be provided to disconnect all power to recirculation and jet system pumps and air blowers. Emergency shutoff switches shall be provided with ready access, be located within sight of the pool or spa, and be located not less than 5 feet (1524mm) horizontally from an inside wall of the pool or spa that is served by the pumps and blowers controlled by the switch. The ready access for such switches shall not be construed as prohibiting weatherproof covers for the switches as allowed for by NFPA 70.

Exception: Onground storable pools, permanent inground residential swimming pools, residential spas and residential water features.

Commenter's Reason: This public comment addresses a concern of the committee that outdoor switches that have weatherproof covers could be construed as not providing ready access. The additional language provided makes the necessary clarification to prevent this from occuring, ensuring weatherproof covers over outdoor switches can still be utilized.

SP19-15

SP20-15

316.2, Table 316.2, 316.4, 316.6 (New), 316.6.1 (New), 316.6.2 (New), Chapter 11

Proposed Change as Submitted

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

316.2 Listed and labeled. Heaters and hot water storage tanks shall be *listed* and *labeled* in accordance with the applicable standard listed in Table 316.2.

TABLE 316.2
WATER HEATERS

DEVICE	STANDARD
Electric water heater	UL 1261, UL 1563 or CSA C22.2 No. 218.1
Gas-fired water heater	ANSI Z21.56/CSA 4.7a
Heat exchanger	~~NSF 50~~AHRI 400
Heat pump water heater	UL 1995, AHRI 1160, CSA C22.2 No. 236
~~Photovoltaic solar water heaters~~	~~NSF 50~~
~~Thermal radiant solar water heater~~	~~NSF 50~~

316.4 Installation. Heaters shall be installed in accordance with the manufacturer's specifications and the *International Fuel Gas Code*, *International Mechanical Code*, *International Energy Conservation Code*, NFPA 70 or *International Residential Code*, as applicable in accordance with Section 102.7.1. Solar thermal water heaters shall be installed in accordance with Section 316.6.

Add new text as follows:

316.6 Solar thermal water heaters. Solar thermal heaters utilized for pools and spas shall comply with Sections 316.6.1 through 316.6.2.

316.6.1 Installation. Solar thermal water heaters shall be installed in accordance with the International Mechanical Code or International Residential Code, as applicable in accordance with Section 102.7.1.

316.6.2 Collectors and panels. Solar thermal collectors and panels shall be listed and labeled in accordance with SRCC 100 or SRCC 600. Collectors and panels shall be permanently marked with the manufacturer's name, model number, and serial number. Such markings shall be located on each collector in a position that is readily viewable after installation of the collector or panel.

Add new standard(s) as follows:

AHRI 400-01 Liquid to Liquid Heat Exchangers with Addenda 1 and 2

SRCC 100 - 13 Standard 100 for Solar Collectors

SRCC 300 - 13 Standard 100 for Solar Water Heating Systems

Reason: This proposal add requirements for solar thermal water heater collectors that appears in the IRC to ensure safety and performance of these devices. It also removes references to NSF 50 for solar thermal and PV water heaters since they are outside the scope of NSF 50. Further, it adds reference to AHRI 400 for heat exchangers to align with an existing requirement in the IECC.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction, rather it aligns requirements with what already exists in other codes.

Analysis: A review of the standard proposed for inclusion in the code,AHRI 400-01, SRCC 100 - 13, SRCC 300 - 13, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

SP20-15 : 316.2-HATFIELD5761

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Photovoltaic systems have nothing to do with standard NSF50.

Assembly Action : None

Analysis. For staff analysis of the content of AHRI 400-01, SRC 100 - 13 and SRCC 300 - 13 with regard to the ICC criteria for referenced standards (Section 3.6 of CP #28), please visit: http://www.iccsafe.org/wp-content/uploads/2015-Proposed-Standards-Group-A-Final.pdf

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Public Comment 1:

Proponent : Jeremy Brown, NSF International, representing NSF International (brown@nsf.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Swimming Pool and Spa Code

316.6.2 Collectors and panels. Solar thermal collectors and panels shall be listed and labeled in accordance with NSF 50, SRCC 100 or SRCC 600. Collectors and panels shall be permanently marked with the manufacturer's name, model number, and serial number. Such markings shall be located on each collector in a position that is readily viewable after installation of the collector or panel.

Commenter's Reason: SP-20 would completely remove NSF 50 from the code as it pertains to pool heating. This is unacceptable since NSF has been listing solar panels and collectors to NSF 50 for years. This public comment will bring the standard back where it belongs. There were two main issues brought forth at the committee hearing. 1) NSF 50 should be removed from the heat exchanger table. This is okay since we are adding NSF 50 in the new section on solar panels and collectors. 2) some committee members did not like that NSF 50 did not have a specific section of the standard covering pool heating. This is correct. In the past, NSF certified pool heating equipment such as solar panels and collectors to NSF 50 using a certification specification to house the performance requirements. Since the commitee meeting, NSF has brought those requirements to a specific section of the standard.
The updated version of NSF 50 complete with a section on pool heating equipment is available for free
at http://www.nsf.org/media/enews/documents/nsf_50_150715.pdf or by emailing brown@nsf.org.

If SP-20 were to pass without this public comment, it would be a problematic because it would be removing viable products and a viable standard that have been previously referenced by this code. NSF 50 is also the only standard that deals with the material health safety issues of pool products. Solar panels used for pool heating probably have the highest surface area to volume ratio of any other pool material and therefore the material safety issues are paramount. I urge your support to help retain NSF 50 where it belongs.

SP20-15

SP25-15

402.1, 402.2, 402.3, 402.4, 402.5, 402.12, Table 402.12, Figure 402.12, Table 402.12(2) (New), Table 402.12(3) (New), Table 402.12(4) (New), Table 402.12(5) (New), Table 402.12(6) (New), Figure 402.12 (6) (New)

Proposed Change as Submitted

Proponent : Donald Leas, representing Self (donleas@hotmail.com)

2015 International Swimming Pool and Spa Code

Revise as follows:

402.1 General. This section covers diving requirements for Class A, Class B, Class C, and Class E pools. Manufactured and fabricated diving equipment and appurtenances shall not be installed on Type O pools.

402.2 Manufactured and fabricated diving equipment. Manufactured and fabricated diving equipment shall be in accordance with ~~Section 808~~ this section and shall be designed for swimming pool use.

402.3 Installation. The installation of manufactured diving equipment shall be in accordance with Sections 402.3 through ~~402.12~~ 402.14. Manufactured diving equipment shall be located in the deep area of the pool so as to provide the minimum dimensions shown in ~~Table 402.12~~ Tables 402.12(1) through (6) and shall be installed in accordance with the manufacturer's instructions. Installation and use instructions for manufactured diving equipment shall be provided by the manufacturer and shall specify the minimum water dimensions required for each diving board and diving stand combination. The manufacturer's instructions shall refer to the water envelope type by dimensionally relating their products to Point A on the water envelopes shown in ~~Table 402.12~~ Tables 402.12(1) through (6). The diving board manufacturer shall specify which boards fit on the design pool geometry types as indicated in ~~Table 402.12.~~ Tables 402.12(1) through (6) as related to Figures 402.12(1), (2), and (6), as applicable.

402.4 Slip resistance. Diving equipment shall have slipresistant walking surfaces.

402.5 Point A. For the application of ~~Table 402.12~~ Tables 402.12(1) through (6), Point A shall be the point from which dimensions of width, length, depth, and ~~depth~~ height are established for the minimum diving water envelope. If the tip of the diving board or diving platform is located at a distance of WA (see Figure 804.1) or A (see Figure 402.12(2)) or greater from the deep end wall and the water depth at that location is equal to or greater than the water depth requirement at Point A, the point on the water surface directly below the center of the tip of the diving board or diving platform shall be identified as Point A.

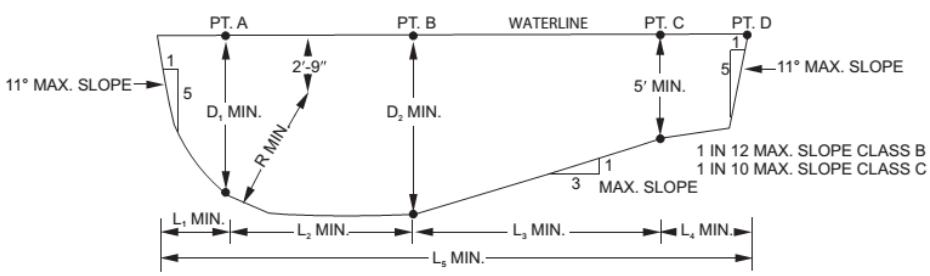
402.12 Water envelopes. The minimum diving water envelopes shall be in accordance with ~~Table 402.12.~~ Tables 402.12(1) through (6).

TABLE ~~402.12~~ 402.12(1)
MINUMUM DIVING WATER ENVELOPES FOR CLASS B AND C POOLS
(SEE FIGURE ~~402.12~~ 402.12(1))

POOL TYPE	MINIMUM DIMENSIONS								MINIMUM WIDTH OF POOL AT:		
	D_1	D_2	R	L_1	L_2	L_3	L_4	L_5	Pt. A	Pt. B	Pt. C
VI	7"-0"	8"-6"	5"-6"	2"-6"	8"-0"	10"-6"	7"-0"	28"-0"	16"-0"	18"-0"	18"-0"
VII	7"-6"	9"-0"	6"-0"	3"-0"	9"-0"	12"-0"	4"-0"	28"-0"	18"-0"	20"-0"	20"-0"
VIII	8"-6"	10"-0"	7"-0"	4"-0"	10"-0"	15"-0"	2"-0"	31"-0"	20"-0"	22"-0"	22"-0"
IX	11"-0"	12"-0"	8"-6"	6"-0"	10"-6"	21"-0"	0	37"-6"	22"-0"	24"-0"	24"-0"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

FIGURE 0
(MINIMUM DIVING WATER ENVELOPES)
CONSTRUCTION DIMENSIONS FOR WATER ENVELOPES FOR CLASS B AND CLASS C POOLS



For SI: 1 degree = 0.017 rad, 1 inch = 25.4 mm, 1 foot = 304.8 mm

Add new text as follows:

TABLE 402.12(2)
MINIMUM DIVING WATER ENVELOPES FOR CLASS A POOLS FOR FINA-SANCTIONED DIVING EVENTS
(meters)

(SEE FIGURE 402.12(2))

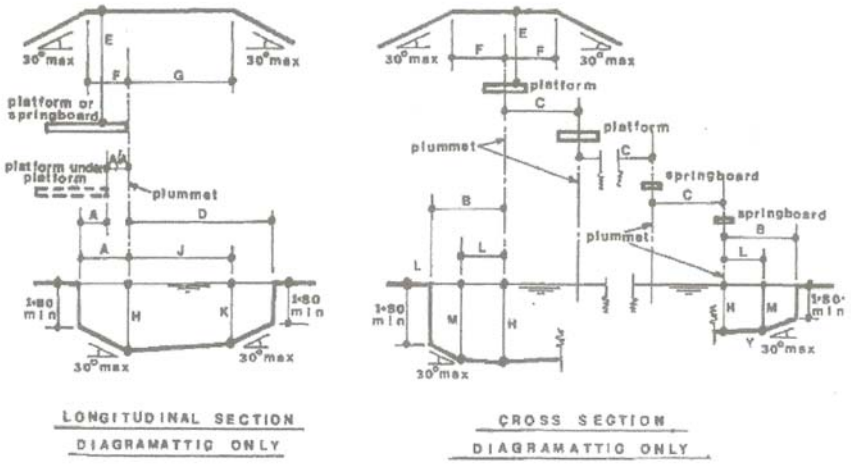
FINA DIVING WATER ENVELOPE IN METRIC DIMENSIONS
FROM FINA HANDBOOK 2013-2017

FINA Dimensions for Diving Facilities		SPRINGBOARD		PLATFORM				
		1 metre	3 metres	1 metre	3 metres	5 metres	7.5 metres	10 metres
For pools constructed after September 26th, 2013 (see FR 5.3.1)	Length	4.80	4.80	5.00	5.00	6.00	6.00	6.00
	Width	0.50	0.50	1.00 min 2.90 pre	1.00 min 2.90 pre	2.90	2.00	3.00
	Height	1.00	3.00	0.60 min 1.00 pre	2.60 min 3.00 pre	5.00	7.50	10.00

			Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert
A	FROM PLUMMET BACK TO WALL FOR CONCRETE PLATFORM	Designation	A-1		A-3		A-1pl		A-3pl		A-5		A-7.5		A-10	
		Minimum	2.22		2.22											
		Preferred	2.22		2.22											
	FROM PLUMMET BACK TO POOL WALL FOR PEDESTALS AND METAL STANDS	Minimum	1.50		1.50		0.75		1.25		1.25		1.25		1.50	
		Preferred	1.80		1.80		0.75		1.25		1.25		1.25		1.50	
A/A	FROM PLUMMET BACK TO PLATFORM plummet directly below	Designation									A/A5/1		A/A7.5/3,1		A/A 10/5,3,1	
		Minimum									0.75		0.75		0.75	
		Preferred									1.25		1.25		1.25	
B	FROM PLUMMET TO POOL WALL AT SIDE	Designation	B-1		B-3		B-1pl		B-3pl		B-5		B-7.5		B-10	
		Minimum	2.50		3.50		2.50		3.00		4.00		4.50		5.75	
		Preferred	2.50		3.50		3.50		3.60		4.50		4.75		5.75	
C	FROM PLUMMET TO ADJACENT PLUMMET	Designation	C1-1		C-3-3,3-1		C1-1pl		C3-3pl,1pl		C5-3,5-1		C7.5-5,3,1		C10-7.5,5,3,1	
		Minimum	2.00		2.20		1.85		2.20*		2.85*		2.75*		3.00*	
		Preferred	2.00		2.60		2.15		2.35*		2.85*		2.75*		3.00*	
D	FROM PLUMMET TO POOL WALL AHEAD	Designation	D-1		D-3		D-1pl		D-3pl		D-5		D-7.5		D-10	
		Minimum	9.00		10.25		8.00		9.50		10.25		11.00		13.50	
		Preferred	9.00		10.25		8.00		9.50		10.25		11.00		13.50	
E	ON PLUMMET, FROM BOARD TO CEILING	Designation		E-1		E-3		E-1pl		E-3pl		E-5		E-7.5		E-10
		Minimum		5.00		5.00		3.25		3.25		3.25		3.25		4.00
		Preferred		5.00		5.00		3.50		3.50		3.50		3.50		5.00
F	CLEAR OVERHEAD BEHIND AND EACH SIDE OF PLUMMET	Designation	F-1	E-1	F-3	E-3	F-1pl	E-1pl	F-3pl	E-3pl	F-5	E-5	F-7.5	E-7.5	F-10	E-10
		Minimum	2.50	5.00	2.50	5.00	2.75	3.25	2.75	3.25	2.75	3.25	2.75	3.25	2.75	4.00
		Preferred	2.50	5.00	2.50	5.00	2.75	3.50	2.75	3.50	2.75	3.50	2.75	3.50	2.75	5.00
G	CLEAR OVERHEAD AHEAD OF PLUMMET	Designation	G-1	E-1	G-3	E-3	G-1pl	E-1pl	G-3pl	E-3pl	G-5	E-5	G-7.5	E-7.5	G-10	E-10
		Minimum	5.00	5.00	5.00	5.00	5.00	3.25	5.00	3.25	5.00	3.25	5.00	3.25	6.00	4.00
		Preferred	5.00	5.00	5.00	5.00	5.00	3.50	5.00	3.50	5.00	3.50	5.00	3.50	6.00	5.00
H	DEPTH OF WATER AT PLUMMET	Designation		H-1		H-3		H-1pl		H-3pl		H-5		H-7.5		H-10
		Minimum		3.40		3.70		3.20		3.50		3.70		4.10		4.50
		Preferred		3.50		3.80		3.30		3.60		3.80		4.50		5.00
J K	DISTANCE AND DEPTH AHEAD OF PLUMMET FOR ALL STANDS	Designation	J-1	K-1	J-3	K-3	J-1pl	K-1pl	J-3pl	K-3pl	J-5	K-5	J-7.5	K-7.5	J-10	K-10
		Minimum	5.00	3.30	6.00	3.60	4.50	3.10	5.50	3.40	6.00	3.60	8.00	4.00	11.00	4.25
		Preferred	5.00	3.40	6.00	3.70	4.50	3.20	5.50	3.50	6.00	3.70	8.00	4.40	11.00	4.75
L M	DISTANCE AND DEPTH EACH SIDE OF PLUMMET	Designation	L-1	M-1	L-3	M-3	L-1pl	M-1pl	L-3pl	M-3pl	L-5	M-5	L-7.5	M-7.5	L-10	M-10
		Minimum	1.50	3.30	2.00	3.60	1.40	3.10	1.80	3.40	3.00	3.60	3.75	4.00	4.50	4.25
		Preferred	2.00	3.40	2.50	3.70	1.90	3.20	2.30	3.50	3.50	3.70	4.50	4.40	5.25	4.75
N	MAXIMUM SLOPE TO REDUCE DIMENSION BEYOND FULL REQUIREMENTS FOR POOL DEPTH and CEILING HEIGHT					30 DEGREES										

	* Note: The minimum distance between adjacent platforms must be at least 0.25 metres. Note: Dimensions B (plummet to pool wall at side) and C (plummet to adjacent plummet) apply to Platforms with widths as detailed. If Platform widths are increased then B and C are to be increased by half the additional width(s). Note: The 10 Metre Platform must project 0.25 metres beyond any adjacent platform. Note: All platforms Note: The leading edge of the concrete platforms for springboards must be at least constructed to be directly above the pool wall or beyond.

FIGURE [Add # Here]
Figure for Tables 402.12(2) through 402.12(5)



FINA, USA DIVING, and NCAA DIVING FACILITIES DIAGRAM

TABLE 402.12(3)
MINIMUM DIVING WATER ENVELOPES FOR CLASS A POOLS FOR USA DIVING-SANCTIONED DIVING EVENTS
(feet-decimal inches)
(SEE FIGURE 401.12(2))

FINA DIVING WATER ENVELOPE CONVERSIONS TO U.S. DIMENSIONS FOR NEW USA DIVING FACILITIES
FROM FINA HANDBOOK 2013-2017

USA DIVING Dimensions for Diving Facilities	SPRINGBOARD	PLATFORM

			1 meter		3 meters		1 meter		3 meters		5 meters		7.5 meters		10 meters	
For pools constructed after September 2013 Extrapolated from FINA HANDBOOK 2013-2017 (See F.R. 5.3.1)		Length	15' - 10.95"		15' - 10.95"		16' - 4.85"		16' - 4.85"		19' - 8.22"		19' - 8.22"		19' - 8.22"	
		Width	1' - 7.69"		1' - 7.69"		3' - 3.37" minimum 9' - 6.18" preferred		3' - 3.37" minimum 9' - 6.18" preferred		9' - 6.18"		6' - 6.74 "		9' - 10.11"	
		Height	3' - 3.37"		9' - 10.11"		1' - 11.63" minimum 3' - 3.37" preferred		8' - 6.37" minimum 9' - 10.11" preferred		16' - 4.85"		24' - 7.28"		32' - 9.70"	
			Horizontal	**Vertical**	**Horizontal**	**Vertical**	**Horizontal**	**Vertical**	**Horizontal**	**Vertical**	**Horizontal**	**Vertical**	**Horizontal**	**Vertical**	**Horizontal**	**Vertical**
A	FROM PLUMMET BACK TO POOL WALL FOR **CONCRETE PLATFORM**	Designation	A-1	--	A-3	--	A-1pl	--	A-3pl	--	A-5	--	A-7.5	--	A-10	--
		Minimum	7' - 3.40"	--	7' - 3.40"	--	2' - 5.53"	--	4' - 1.22"	--	4' - 1.22"	--	4' - 1.22"	--	4' - 11.06"	--
		Preferred	7' - 3.40"	--	7' - 3.40"	--	2' - 5.53"	--	4' - 1.22"	--	4' - 1.22"	--	4' - 1.22"	--	4' - 11.06"	--
	FROM PLUMMET BACK TO POOL WALL FOR **PEDESTALS AND METAL STANDS**	Minimum	4' - 11.06"	--	4' - 11.06"	--	--	--	--	--	--	--	--	--	--	--
		Preferred	5' - 10.87"	--	5' - 10.87"	--	--	--	--	--	--	--	--	--	--	--
A/A	FROM PLUMMET BACK TO PLATFORM PLUMMET DIRECTLY BELOW	Designation	--	--	--	--	--	--	--	--	A/A 5/1		A/A 7.5/3,1		A/A 10/5,3,1	
		Minimum	--	--	--	--	--	--	--	--	2' - 5.53"	--	2' - 5.53"	--	2' - 5.53"	--
		Preferred	--	--	--	--	--	--	--	--	4' - 1.22"	--	4' - 1.22"	--	4' - 1.22"	--
B	FROM PLUMMET TO POOL WALL AT SIDE	Designation	B-1		B-3		B-1pl		B-3pl		B-5		B-7.5		B-10	
		Minimum	8' - 2.43"	--	11' - 5.80"	--	8' - 2.43"	--	9' - 10.11"	--	13' - 1.48"		14' - 9.17"	--	18' - 10.38"	--
		Preferred	8' - 2.43"	--	11' - 5.80"	--	11' - 5.80"	--	11' - 9.74"	--	14' - 9.17"		15' - 7.01"	--	18' - 10.38"	--
C	FROM PLUMMET TO ADJACENT PLUMMET	Designation	C1-1		C-3-3,3-1		C1-1pl		C3-3pl,1pl		C5-3,5-1		C7.5-5,3,1		C-10-7.5,5,3,1	
		Minimum	6' - 6.74"	--	7' - 2.62"	--	6' - 0.84"	--	7' - 2.62" *	--	9' - 4.21" *	--	9' - 0.27" *	--	9' - 10.11" *	--

		Preferred	6' - 6.74"	--	8' - 6.37"	--	7' - 0.65"	--	7' - 8.52" *	--	9' - 4.21" *	--	9' - 0.27" *	--	9' - 10.11" *	--
D	FROM PLUMMET TO POOL WALL AHEAD	Designation	D-1		D-3	--	D-1pl	--	D-3pl	--	D-5	--	D-7.5	--	D-10	--
		Minimum	29' - 6.33"	--	33' - 7.55"	--	26' - 2.96"	--	31' - 2.02"	--	33' - 7.55"	--	36' - 1.07"	--	44' - 3.50"	--
		Preferred	29' - 6.33"	--	33' - 7.55"	--	26' - 2.96"	--	31' - 2.02"	--	33' - 7.55"	--	36' - 1.07"	--	44' - 3.50"	--
E	ON PLUMMET, FROM BOARD TO CEILING	Designation	--	E-1	--	E-3	--	E-1pl	--	E-3pl	--	E-5	--	E-7.5	--	E-10
		Minimum	--	16' - 4.85"	--	16' - 4.85"	--	10' - 7.96"	--	10' - 7.96"	--	10' - 7.96"	--	10' - 7.96"	--	13' - 1.48"
		Preferred	--	16' - 4.85"	--	16' - 4.85"	--	11' - 5.80"	--	11' - 5.80"	--	11' - 5.80"	--	11' - 5.80"	--	16' - 4.85"
F	CLEAR OVERHEAD BEHIND AND EACH SIDE OF PLUMMET	Designation	F-1	E-1	F-3	E-3	F-1pl	E-1pl	F-3pl	E-3pl	F-5	E-5	F-7.5	E-7.5	F-10	E-10
		Minimum	8' - 2.43"	16' - 4.85"	8' - 2.43"	16' - 4.85"	9' - 0.27"	10' - 7.96"	9' - 0.27"	10' - 7.96"	9' - 0.27"	10' - 7.96"	9' - 0.27"	10' - 7.96"	9' - 0.27"	13' - 1.48"
		Preferred	8' - 2.43"	16' - 4.85"	8' - 2.43"	16' - 4.85"	9' - 0.27"	11' - 5.80"	9' - 0.27"	11' - 5.80"	9' - 0.27"	11' - 5.80"	9' - 0.27"	11' - 5.80"	9' - 0.27"	16' - 4.85"
G	CLEAR OVERHEAD AHEAD OF PLUMMET	Designation	G-1	E-1	G-3	E-3	G-1pl	E-1pl	G-3pl	E-3pl	G-5	E-5	G-7.5	E-7.5	G-10	E-10
		Minimum	16' - 4.85"	16' - 4.85"	16' - 4.85"	16' - 4.85"	16' - 4.85"	10' - 7.96"	16' - 4.85"	10' - 7.96"	16' - 4.85"	10' - 7.96"	16' - 4.85"	10' - 7.96"	19' - 8.22"	13' - 1.48"
		Preferred	16' - 4.85"	16' - 4.85"	16' - 4.85"	16' - 4.85"	16' - 4.85"	11' - 5.80"	16' - 4.85"	11' - 5.80"	16' - 4.85"	11' - 5.80"	16' - 4.85"	11' - 5.80"	19' - 8.22"	16' - 4.85"
H	DEPTH OF WATER AT PLUMMET	Designation	--	H-1	--	H-3	--	H-1pl	--	H-3pl	--	H-5	--	H-7.5	--	H-10
		Minimum	--	11'	--	12'	--	10' - 5.99"	--	11' - 5.80"	--	12'	--	13' - 5.42"	--	14' - 9.17"
		Preferred	--	11' - 5.80"	--	12' - 5.61"	--	10' - 9.92"	--	11' - 9.74"	--	12' - 5.61"	--	14' - 9.17"	--	16' - 4.85"
J K	DISTANCE AND DEPTH AHEAD OF PLUMMET FOR ALL STANDS	Designation	J-1	K-1	J-3	K-3	J-1pl	K-1pl	J-3pl	K-3pl	J-5	K-5	J-7.5	K-7.5	J-10	K-10
		Minimum	16' - 4.85"	10' - 9.92"	19' - 8.22"	11' - 9.74"	14' - 9.17"	10' - 2.05"	18' - 0.54"	11' - 1.86"	19' - 8.22"	11' - 9.74"	26' - 2.96"	13' - 1.48"	36' - 1.07"	13' - 11.33"
		Preferred	16' - 4.85"	11' - 1.86"	19' - 8.22"	12' - 1.67"	14' - 9.17"	10' - 5.99"	18' - 0.54"	11' - 5.80"	19' - 8.22"	12' - 1.67"	26' - 2.96"	14' - 5.23"	36' - 1.07"	15' - 7.01"
L M	DISTANCE AND DEPTH EACH SIDE OF PLUMMET	Designation	L-1	M-1	L-3	M-3	L-1pl	M-1pl	L-3pl	M-3pl	L-5	M-5	L-7.5	M-7.5	L-10	M-10
		Minimum	4' - 11.06"	10' - 9.92"	6' - 6.74"	11' - 9.74"	4' - 7.12"	10' - 2.05"	5' - 10.87"	11' - 1.86"	9' - 10.11"	11' - 9.74"	12' - 3.64"	13' - 1.48"	14' - 9.17"	13' - 11.33"
		Preferred	6' - 6.74"	11' - 1.86"	8' - 2.43"	12' - 1.67"	6' - 2.81"	10' - 5.99"	7' - 6.55"	11' - 5.80"	11' - 5.80"	12' - 1.67"	14' - 9.17"	14' - 5.23"	17' - 2.70"	15' - 7.01"
N	MAXIMUM SLOPE TO REDUCE DIMENSION BEYOND MINIMUM REQUIREMENTS FOR POOL DEPTH and CEILING HEIGHT IS 30 DEGREES.															

Note 1:The leading edge of the concrete platforms for springboards must be at least constructed to be directly above the pool wall or beyond.

Note 2: All platforms must project 2'-5.53" (0.75 meters) beyond any plaform directly below.

Note 3: Dimensions B (plummet to pool wall at side) and C (plummet to adjacent plummet) apply to Platforms with widths as detailed. If Platform widths are increased then B and C are to be increased by half the additional width(s).

* Note 4: The minimum distance between adjacent platforms must be at least 0'-9.84" (0.25 meters).

Note 5: The 10 Metre Platform must project at least 0'-9.84" (0.25 meters) beyond any adjacent platform.
Note 6: In dimension H 'Dept of Water at Plummet', USA DIVING has approved 11' for 1m springboard and 12' for 3m springboard and 5m platform as the minimum depth.

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TABLE 402.12(4)
MINIMUM DIVING WATER ENVELOPES FOR CLASS A POOLS FOR USA DIVING-SANCTIONED DIVING EVENTS
(feet-fractional inches)
(SEE FIGURE 401.12(2))

FINA DIVING WATER ENVELOPE CONVERSIONS TO U.S. DIMENSIONS FOR NEW USA DIVING FACILITIES

FROM FINA HANDBOOK 2013-2017

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USA DIVING Dimensions for Diving Facilities		**SPRINGBOARD**				**PLATFORM**										
		1 meter		3 meters		1 meter		3 meters		5 meters		7.5 meters		10 meters		
For pools constructed after September 2013 Extrapolated from FINA HANDBOOK 2013-2017 (see F.R. 5.3.1)	Length	15' - 11"		15' - 11"		16' - 4 7/8"		16' - 4 7/8"		19' - 8 1/4"		19' - 8 1/4"		19' - 8 1/4"		
	Width	1' - 7 3/4"		1' - 7 3/4"		3' - 3 3/8" minimum 9' - 6 3/16" preferred		3' - 3 3/8" minimum 9' - 6 3/16" preferred		9' - 6 3/16"		6' - 6 3/4"		9' - 10 1/8"		
	Height	3' - 3 3/8"		9' - 10 1/8"		1' - 11 11/16" minimum 3' - 3 3/8" preferred		8' - 6 3/8" minimum 9' - 10 1/8" preferred		16' - 4 7/8"		24' - 7 5/16"		32' - 9 3/4"		
		Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	
A	FROM PLUMMET BACK TO POOL WALL FOR **CONCRETE PLATFORM**	Designation	A-1	--	A-3	--	A-1pl	--	A-3pl	--	A-5		A-7.5		A-10	
		Minimum	7' - 3 7/16"	--	7' - 3 7/16"	--	2' - 5 9/16"	--	4' - 1 1/4"	--	4' - 1 1/4"		4' - 1 1/4"		4' - 11 1/16"	
		Preferred	7' - 3 7/16"	--	7' - 3 7/16"	--	2' - 5 9/16"	--	4' - 1 1/4"	--	4' - 1 1/4"		4' - 1 1/4"		4' - 11 1/16"	
	FROM PLUMMET BACK TO POOL WALL FOR **PEDESTALS AND METAL STANDS**	Minimum	4' - 11 1/16"	--	4' - 11 1/16"	--	--	--	--	--	--					
		Preferred	5' - 10 7/8"	--	5' - 10 7/8"	--	--	--	--	--	--					
A/A	FROM PLUMMET BACK TO PLATFORM PLUMMET DIRECTLY BELOW	Designation									A/A5/1		A/A7.5/3,1		A/A 10/5,3,1	
		Minimum									2' - 5 9/16"		2' - 5 9/16"		2' - 5 9/16"	
		Preferred									4' - 1 1/4"		4' - 1 1/4"		4' - 1 1/4"	
B	FROM PLUMMET TO POOL WALL AT SIDE	Designation	B-1		B-3		B-1pl		B-3pl		B-5		B-7.5		B-10	
		Minimum	8' - 2 7/16"		11' - 5 13/16"		8' - 2 7/16"		9' - 10 1/8"		13' - 1 1/2"		14' - 9 3/16"		18' - 10 7/16"	
		Preferred	8' - 2 7/16"		11' - 5 13/16"		11' - 5 13/16"		11' - 9 3/4"		14' - 9 3/16"		15' - 7 1/16"		18' - 10 7/16"	
C	FROM PLUMMET TO ADJACENT	Designation	C1-1		C-3-3,3-1		C1-1pl		C3-3pl,1pl		C5-3,5-1		C7.5-5,3,1		C-10-7.5,5,3,1	
		Minimum	6' - 6 3/4"		7' - 2 5/8"		6' - 0 7/8"		7' - 2 5/8" *		9' - 4 1/4" *		9' - 0 5/16" *		9' - 10 1/8" *	

	PLUMMET	Preferred	6' - 6 3/4"		8' - 6 3/8"		7' - 0 11/16"		7' - 8 9/16" *		9' - 4 1/4" *		9' - 0 5/16" *		9' - 10 1/8" *	
D	FROM PLUMMET TO POOL WALL AHEAD	Designation	D-1		D-3		D-1pl		D-3pl		D-5		D-7.5		D-10	
		Minimum	29' - 6 3/8"		33' - 7 9/16"		26' - 3"		31' - 2 1/16"		33' - 7 9/16"		36' - 1 1/8"		44' - 3 1/2"	
		Preferred	29' - 6 3/8"		33' - 7 9/16"		26' - 3"		31' - 2 1/16"		33' - 7 9/16"		36' - 1 1/8"		44' - 3 1/2"	
E	ON PLUMMET, FROM BOARD TO CEILING	Designation		E-1		E-3		E-1pl		E-3pl		E-5		E-7.5		E-10
		Minimum		16' - 4 7/8"		16' - 4 7/8"		10' - 8"		10' - 8"		10' - 8"		10' - 8"		13' - 1 1/2"
		Preferred		16' - 4 7/8"		16' - 4 7/8"		11' - 5 13/16"		11' - 5 13/16"		11' - 5 13/16"		11' - 5 13/16"		16' - 4 7/8"
F	CLEAR OVERHEAD BEHIND AND EACH SIDE OF PLUMMET	Designation	F-1	E-1	F-3	E-3	F-1pl	E-1pl	F-3pl	E-3pl	F-5	E-5	F-7.5	E-7.5	F-10	E-10
		Minimum	8' - 2 7/16"	16' - 4 7/8"	8' - 2 7/16"	16' - 4 7/8"	9' - 0 5/16"	10' - 8"	9' - 0 5/16"	10' - 8"	9' - 0 5/16"	10' - 8"	9' - 0 5/16"	10' - 8"	9' - 0 5/16"	13' - 1 1/2"
		Preferred	8' - 2 7/16"	16' - 4 7/8"	8' - 2 7/16"	16' - 4 7/8"	9' - 0 5/16"	11' - 5 13/16"	9' - 0 5/16"	11' - 5 13/16"	9' - 0 5/16"	11' - 5 13/16"	9' - 0 5/16"	11' - 5 13/16"	9' - 0 5/16"	16' - 4 7/8"
G	CLEAR OVERHEAD AHEAD OF PLUMMET	Designation	G-1	E-1	G-3	E-3	G-1pl	E-1pl	G-3pl	E-3pl	G-5	E-5	G-7.5	E-7.5	G-10	E-10
		Minimum	16' - 4 7/8"	16' - 4 7/8"	16' - 4 7/8"	16' - 4 7/8"	16' - 4 7/8"	10' - 8"	16' - 4 7/8"	10' - 8"	16' - 4 7/8"	10' - 8"	16' - 4 7/8"	10' - 8"	19' - 8 1/4"	13' - 1 1/2"
		Preferred	16' - 4 7/8"	16' - 4 7/8"	16' - 4 7/8"	16' - 4 7/8"	16' - 4 7/8"	11' - 5 13/16"	16' - 4 7/8"	11' - 5 13/16"	16' - 4 7/8"	11' - 5 13/16"	16' - 4 7/8"	11' - 5 13/16"	19' - 8 1/4"	16' - 4 7/8"
H	DEPTH OF WATER AT PLUMMET *See Note 6*	Designation		H-1		H-3		H-1pl		H-3pl		H-5		H-7.5		H-10
		Minimum		11'		12'		10' - 6"		11' - 5 13/16"		12'		13' - 5 7/16"		14' - 9 3/16"
		Preferred		11' - 5 13/16"		12' - 5 5/8"		10' - 9 15/16"		11' - 9 3/4"		12' - 5 5/8"		14' - 9 3/16"		16' - 4 7/8"
J K	DISTANCE AND DEPTH AHEAD OF PLUMMET FOR ALL STANDS	Designation	J-1	K-1	J-3	K-3	J-1pl	K-1pl	J-3pl	K-3pl	J-5	K-5	J-7.5	K-7.5	J-10	K-10
		Minimum	16' - 4 7/8"	10' - 9 15/16"	19' - 8 1/4"	11' - 9 3/4"	14' - 9 3/16"	10' - 2 1/16"	18' - 0 9/16"	11' - 1 7/8"	19' - 8 1/4"	11' - 9 3/4"	26' - 3"	13' - 1 1/2"	36' - 1 1/8"	13' - 11 3/8"
		Preferred	16' - 4 7/8"	11' - 1 7/8"	19' - 8 1/4"	12' - 1 11/16"	14' - 9 3/16"	10' - 6"	18' - 0 9/16"	11' - 5 13/16"	19' - 8 1/4"	12' - 1 11/16"	26' - 3"	14' - 5 1/4"	36' - 1 1/8"	15' - 7 1/16"
L M	DISTANCE AND DEPTH EACH SIDE OF PLUMMET	Designation	L-1	M-1	L-3	M-3	L-1pl	M-1pl	L-3pl	M-3pl	L-5	M-5	L-7.5	M-7.5	L-10	M-10
		Minimum	4' - 11 1/16"	10' - 9 15/16"	6' - 6 3/4"	11' - 9 3/4"	4' - 7 1/8"	10' - 2 1/16"	5' - 10 7/8"	11' - 1 7/8"	9' - 10 1/8"	11' - 9 3/4"	12' - 3 11/16"	13' - 1 1/2"	14' - 9 3/16"	13' - 11 3/8"
		Preferred	6' - 6 3/4"	11' - 1 7/8"	8' - 2 7/16"	12' - 1 11/16"	6' - 2 13/16"	10' - 6"	7' - 6 9/16"	11' - 5 13/16"	11' - 5 13/16"	12' - 1 11/16"	14' - 9 3/16"	14' - 5 1/4"	17' - 2 3/4"	15' - 7 1/16"
N	MAXIMUM SLOPE TO REDUCE DIMENSION BEYOND MINIMUM REQUIREMENTS FOR POOL DEPTH and CEILING HEIGHT IS 30 DEGREES.															

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TABLE 402.12(5)
MINIMUM DIVING ENVELOPES FOR CLASS A POOLS FOR NCAA-SANCTIONED DIVING EVENTS
(feet-inches)
(SEE FIGURE 402.12(2))
FINA DIVING WATER ENVELOPE CONVERSIONS TO U.S. DIMENSIONS FOR NEW NCAA DIVING FACILITIES
FROM FINA HANDBOOK 2013 - 2017

NCAA Recommended Dimensions for Diving Facilities		Dimensions are In Feet	**SPRINGBOARD**				**PLATFORM**									
			1 meter		3 meters		1 meter		3 meters		5 meters		7.5 meters		10 meters	
		LENGTH	16'		16'		16' - 5"		16' - 5"		20'		20'		20'	
		WIDTH	1' - 8"		1' - 8"		3' - 4" minimum 9' - 7" preferred		3' - 4" minimum 9' - 7" preferred		9' -7"		6' -7" minimum		9' - 10"	
Revised October 1, 2013		HEIGHT	3' - 4"		9' - 11"		2' minimum 3' - 4" preferred		8' - 7" minimum 9' - 11" preferred		16' - 5"		24' - 8"		32' - 10"	
			Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
A	FROM PLUMMET BACK TO POOL WALL FOR **CONCRETE PLATFORM**	Designation	A-1		A-3		A-1pl		A-3pl		A-5		A-7.5		A-10	
		Minimum	7' - 4"		7' - 4"		2' - 6"		4' - 2"		4' - 2"		4' - 2"		5'	
		Preferred	7' - 4"		7' - 4"		2' - 6"		4' - 2"		4' - 2"		4' - 2"		5'	
	FROM PLUMMET BACK TO POOL WALL FOR **PEDESTALS AND METAL STANDS**	Minimum	5'		5'											
		Preferred	5' - 11"		5' - 11"											
A/A	From plummet BACK TO PLATFORM plummet directly below	Designation									A/A5/1		A/A7.5/3,1		A/A 10/5,3,1	
		Minimum									2' - 6"		2' - 6"		2' - 6"	
		Preferred									4' - 2"		4' - 2"		4' - 2"	
B	From plummet to POOL WALL AT SIDE	Designation	B-1		B-3		B-1pl		B-3pl		B-5		B-7.5		B-10	
		Minimum	8' - 3"		11' - 6"		8' - 3"		9' - 11"		3' - 1"		14' - 10"		18' - 11"	
		Preferred	8' - 3"		11' - 6"		11' - 6"		11' - 10"		14' - 10"		15' - 8"		18' - 11"	
C	From plummet to ADJACENT PLUMMET *See Note 1*	Designation	C1-1		C-3-3,3-1		C1-1pl		C3-3pl,1pl		C5-3,5-1		C7.5-5,3,1		C-10-7.5,5,3,1	
		Minimum	6' - 7"		7' - 3"		6' - 1"		7' - 3" *		9' - 5" *		9' - 1"		9' - 11" *	
		Preferred	6' - 7"		8' - 7"		7' - 1"		7' - 9" *		9' - 5" *		9' - 1"		9' - 11" *	
D	From plummet to POOL WALL AHEAD	Designation	D-1		D-3		D-1pl		D-3pl		D-5		D-7.5		D-10	
		Minimum	29' - 7"		33' - 8"		26' - 3"		31' - 3"		33' - 8"		36' - 2"		44' - 4"	
		Preferred	29' - 7"		33' - 8"		26' - 3"		31' - 3"		33' - 8"		36' - 2"		44' - 4"	
E	On plummet, from BOARD TO CEILING	Designation		E-1		E-3		E-1pl		E-3pl		E-5		E-7.5		E-10
		Minimum		16' - 5"		16' - 5"		10' - 8"		10' - 8"		10' - 8"		10' - 8"		13' - 2"
		Preferred		16' - 5"		16' - 5"		11' - 6"		11' - 6"		11' - 6"		11' - 6"		16' - 5"
F	CLEAR OVERHEAD behind and each side of plummet	Designation	F-1	E-1	F-3	E-3	F-1pl	E-1pl	F-3pl	E-3pl	F-5	E-5	F-7.5	E-7.5	F-10	E-10
		Minimum	8' - 3"	16' - 5"	8' - 3"	16' - 5"	9' - 1"	10' - 8"	9' - 1"	10' - 8"	9' - 1"	10' - 8"	9' - 1"	10' - 8"	9' - 1"	13' - 2"
		Preferred	8' - 3"	16' - 5"	8' - 3"	16' - 5"	9' - 1"	11' - 6"	9' - 1"	11' - 6"	9' - 1"	11' - 6"	9' - 1"	11' - 6"	9' - 1"	16' - 5"

G	CLEAR OVERHEAD ahead of plummet	Designation	G-1	E-1	G-3	E-3	G-1pl	E-1pl	G-3pl	E-3pl	G-5	E-5	G-7.5	E-7.5	G-10	E-10
		Minimum	16' - 5"	16' - 5"	16' - 5"	16' - 5"	16' - 5"	10' - 8"	16' - 5"	10' - 8"	16' - 5"	10' - 8"	16' - 5"	10' - 8"	19' - 9"	13' - 2"
		Preferred	16' - 5"	16' - 5"	16' - 5"	16' - 5"	16' - 5"	11' - 6"	16' - 5"	11' - 6"	16' - 5"	11' - 6"	16' - 5"	11' - 6"	19' - 9"	16' - 5"
H	DEPTH OF WATER at plummet (minimum required)	Designation		H-1		H-3		H-1pl		H-3pl		H-5		H-7.5		H-10
		Minimum		11' - 2"		12' - 2"		10' - 6"		11' - 6"		12' - 2"		13' - 6"		14' - 10"
		Preferred		11' - 6"		12' - 6"		10' - 10"		11' - 10"		12' - 6"		14' - 10"		16' - 5"
J K	DISTANCE AND DEPTH ahead of plummet	Designation	J-1	K-1	J-3	K-3	J-1pl	K-1pl	J-3pl	K-3pl	J-5	K-5	J-7.5	K-7.5	J-10	K-10
		Minimum	16' - 5"	10' - 10"	19' - 9"	11' - 10"	14' - 10"	10' - 3"	18' - 1"	11' - 2"	19' - 9"	11' - 10"	26' - 3"	13' - 2"	36' - 2"	14'
		Preferred	16' - 5"	11' - 2"	19' - 9"	12' - 2"	14' - 10"	10' - 6"	18' - 1"	11' - 6"	19' - 9"	12' - 9"	26' - 3"	14' - 6"	36' - 2"	15' - 8"
L M	DISTANCE AND DEPTH each side of plummet	Designation	L-1	M-1	L-3	M-3	L-1pl	M-1pl	L-3pl	M-3pl	L-5	M-5	L-7.5	M-7.5	L-10	M-10
		Minimum	5'	10' - 10"	6' - 7"	11' - 10"	4' - 8"	10' - 3"	5' - 11"	11' - 2"	9' - 11"	11' - 10"	12' - 4"	13' - 2"	14' - 10"	14'
		Preferred	6' - 7"	11' - 2"	8' - 3"	12' - 2"	6' - 3"	10' - 6"	7' - 7"	11' - 6"	11' - 6"	12' - 2"	14' - 10"	14' - 6"	17' - 3"	15' - 8"
N	MAXIMUM SLOPE TO REDUCE DIMENSION beyond full requirements	Pool depth Ceiling Ht	30 degrees 30 degrees	Note 1: Dimensions C (plummet to adjacent plummet) apply for platforms with width as detailed. For wider platfors increase C by half the additional width(s). Note 2: All dimensions rounded up, even if only fractionally greater than the next lowest inch.												

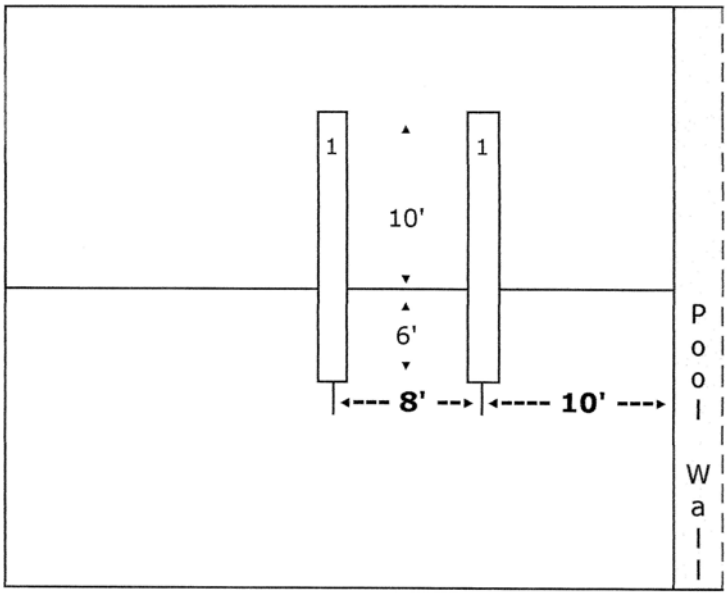
TABLE 402.12(6)
Matrix of Springboard Dimensions for High School Competitive Diving

	NATIONAL FEDERATION OF STATE HIGH SCHOOL ASSOCIATIONS (NFHS)			
	Rule 9, Section 1, Article 1	**Board Height**	**U.S Dimensions**	**Metric Dimensions**
	Length of Board	1m	16'	4.877m
	Width of Board	1m	20"	.508m
a.	End of springboard Back to Pool Wall	1m	6'	1.829m
b.	Center of board to center of another board	1m	8'	2.438m
c.	Center of board to pool side wall	1m	10'	3.048m
d.	End of springboard to forward pool wall	1m	29'	8.839m
e.	Top of springboard to ceiling overhead	1m	16'	4.877m
f.	Water depth at any point 2' to 5' in front of the end of the board, must be 12' (3.658m) or more, except for pools constructed prior to January 1987, where water depth 2 to 5 feet in front of the end of the board must be a minimum of 10 feet (3.045m).	1m	12' /10'	3.658 / 3.048m

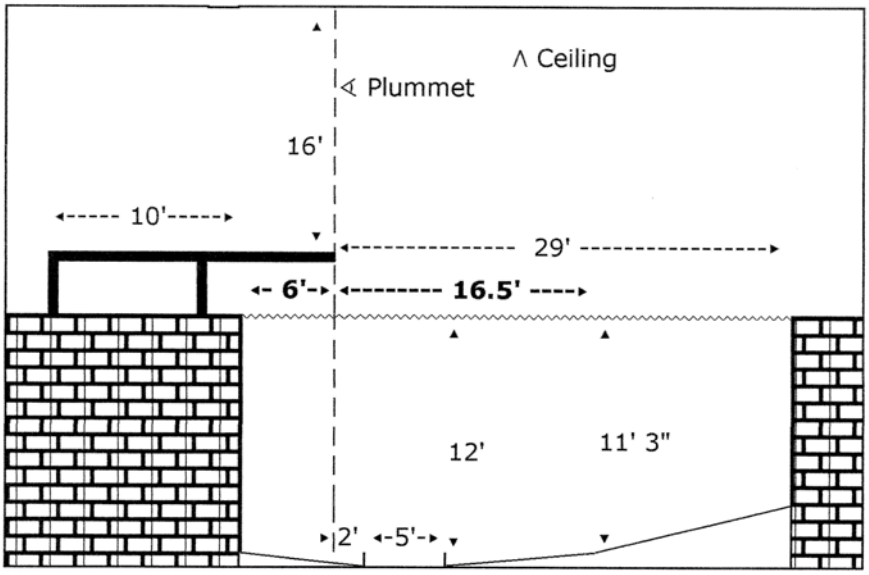
g.	Maximum depth reduction rate of diving pools which do not exceed minimum depth requirement shall be 6 1/4% for a distance of 16.5' (5.0m) forward (6.096m) from the end of the board and 6' (1.829m) back and to the sides. Deeper pools may have proportionally steeper depth reduction rates.	1m	**	**

FIGURE [Add # Here]
FIGURE FOR TABLE 402.12(6)

MINIMUM DIVING WATER ENVELOPE FOR HIGH SCHOOL POOLS WITH TWO 1 METER SPRINGBOARDS



Overhead View



Side View

Reason: Architects, contractors, and zoning officers have often asked for a conversion table of the FINA dimensions to U. S. dimensions. The three national governing bodies have different diemnsional conversion standards. This information needs to be in this publication so that there is not misinterpretation of what is required in USA Diving, NCAA, and high school diving facilities to guard against a facility not being able to a sanction for competition.

Cost Impact: Will not increase the cost of construction
These dimensions are already a requirement for competition pools and therefore, there is no change in the cost of construction. Having this information all in one place might eliminate rework costs and lower the cost of installing these pools.

SP25-15 : 402.1-LEAS5115

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proponent wanted to present a floor modification to eliminate much of the proposal, however, the modification was ruled out of otrder by the committee chair. Therefore, the committee did not want to consider the proposal as submitted as the proponent wanted to make major changes.

Assembly Action **:** None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org) requests Approve as Modified by this Public Comment.**

Replace Proposal as Follows:

2015 International Swimming Pool and Spa Code

402.2 Manufactured and fabricated diving equipment. Manufactured and fabricated diving equipment shall be in accordance with ~~Section 808~~ this section and shall be designed for swimming pool use.

402.3 Installation. The installation of manufactured diving equipment shall be in accordance with Sections 402.3 through ~~402.12~~ 402.14. Manufactured diving equipment shall be located in the deep area of the pool so as to provide the minimum dimensions shown in Table 402.12 and shall be installed in accordance with the manufacturer's instructions. Installation and use instructions for manufactured diving equipment shall be provided by the manufacturer and shall specify the minimum water dimensions required for each diving board and diving stand combination. The manufacturer's instructions shall refer to the water envelope type by dimensionally relating their products to Point A on the water envelopes shown in Table 402.12. The diving board manufacturer shall specify which boards fit on the design pool geometry types as indicated in Table 402.12.

Commenter's Reason: This public comment removes most of the original proposal but leaves two changes that are necessary. First, it removes the reference to Section 808, which is residential inground pool diving requirements and correctly references the public pool diving section, which is Section 402 (the section being addressed in this public comment). Second, it changes 402.12 to 402.14 to capture all of the subsections within 402, to ensure that manufactured diving equipment is installed per all the requirements found within Section 402.

SP25-15

A	WALL FOR **CONCRETE PLATFORM**					
		Preferred	7' - 3 7/16"	--	7' - 3 7/16"	-
	FROM PLUMMET BACK TO POOL WALL FOR **PEDESTALS AND METAL STANDS**	Minimum	4' - 11 1/16"	--	4' - 11 1/16"	
		Preferred	5' - 10 7/8"	--	5' - 10 7/8"	
A/A	FROM PLUMMET BACK TO PLATFORM PLUMMET DIRECTLY BELOW	Designation				
		Minimum				
		Preferred				
B	FROM PLUMMET TO POOL WALL AT SIDE	Designation	B-1		B-3	
		Minimum	8' - 2 7/16"		11' - 5 13/16"	
		Preferred	8' - 2 7/16"		11' - 5 13/16"	
C	FROM PLUMMET TO ADJACENT PLUMMET	Designation	C1-1		C-3-3,3-1	
		Minimum	6' - 6 3/4"		7' - 2 5/8"	
		Preferred	6' - 6 3/4"		8' - 6 3/8"	

D	FROM PLUMMET TO POOL WALL AHEAD	Designation	D-1		D-3	
		Minimum	29' - 6 3/8"		33' - 7 9/16"	
		Preferred	29' - 6 3/8"		33' - 7 9/16"	
E	ON PLUMMET, FROM BOARD TO CEILING	Designation		E-1		E
		Minimum		16' - 4 7/8"		16 7/
		Preferred		16' - 4 7/8"		16 7/
F	CLEAR OVERHEAD BEHIND AND EACH SIDE OF PLUMMET	Designation	F-1	E-1	F-3	E
		Minimum	8' - 2 7/16"	16' - 4 7/8"	8' - 2 7/16"	16 7/
		Preferred	8' - 2 7/16"	16' - 4 7/8"	8' - 2 7/16"	16 7/
G	CLEAR OVERHEAD AHEAD OF PLUMMET	Designation	G-1	E-1	G-3	E
		Minimum	16' - 4 7/8"	16' - 4 7/8"	16' - 4 7/8"	16 7/
		Preferred	16' - 4 7/8"	16' - 4 7/8"	16' - 4 7/8"	16 7/
		Designation		H-1		H

H	DEPTH OF WATER AT PLUMMET *See Note 6*	Minimum		11'		1
		Preferred		11' - 5 13/16"		12 5/
J K	DISTANCE AND DEPTH AHEAD OF PLUMMET FOR ALL STANDS	Designation	J-1	K-1	J-3	K
		Minimum	16' - 4 7/8"	10' - 9 15/16"	19' - 8 1/4"	11 3/
		Preferred	16' - 4 7/8"	11' - 1 7/8"	19' - 8 1/4"	12 11/
L M	DISTANCE AND DEPTH EACH SIDE OF PLUMMET	Designation	L-1	M-1	L-3	M
		Minimum	4' - 11 1/16"	10' - 9 15/16"	6' - 6 3/4"	11 3/
		Preferred	6' - 6 3/4"	11' - 1 7/8"	8' - 2 7/16"	12 11/
N	MAXIMUM SLOPE TO REDUCE DIMENSION BEYOND MINIMUM REQUIREM					
–						

TABLE 402.12(5)
MINIMUM DIVING ENVELOPES FOR CLASS A POOLS FOR NCAA-SANCTIONED DIVING EVENTS
(feet-inches)

(SEE FIGURE 402.12(2))

FINA DIVING WATER ENVELOPE CONVERSIONS TO U.S. DIMENSIONS FOR NEW NCAA DIVING FACILITIES FROM FINA HANDBOOK 2013 - 2017

NCAA Recommended Dimensions for Diving Facilities		Dimensions are In Feet	**SPRINGBOARD**				
			1 meter		3 meters		
		LENGTH	16'		16'		
		WIDTH	1' - 8"		1' - 8"		
Revised October 1, 2013		HEIGHT	3' - 4"		9' - 11"		
			Horizontal	Vertical	Horizontal	Vertical	
A	FROM PLUMMET BACK TO POOL WALL FOR **CONCRETE PLATFORM**	Designation	A-1		A-3		
		Minimum	7' - 4"		7' - 4"		
		Preferred	7' - 4"		7' - 4"		
	FROM PLUMMET BACK TO POOL WALL FOR **PEDESTALS AND METAL STANDS**	Minimum	5'		5'		
		Preferred	5' - 11"		5' - 11"		
A/A	From plummet BACK TO PLATFORM plummet directly below	Designation					
		Minimum					
		Preferred					

B	From plummet to POOL WALL AT SIDE	Designation	B-1		B-3	
		Minimum	8' - 3"		11' - 6"	
		Preferred	8' - 3"		11' - 6"	
C	From plummet to ADJACENT PLUMMET *See Note 1*	Designation	C1-1		C-3-3,3-1	
		Minimum	6' - 7"		7' - 3"	
		Preferred	6' - 7"		8' - 7"	
D	From plummet to POOL WALL AHEAD	Designation	D-1		D-3	
		Minimum	29' - 7"		33' - 8"	
		Preferred	29' - 7"		33' - 8"	
E	On plummet, from BOARD TO CEILING	Designation		E-1		E-3
		Minimum		16' - 5"		16' - 5"
		Preferred		16' - 5"		16' - 5"
F	CLEAR OVERHEAD behind and each side of plummet	Designation	F-1	E-1	F-3	E-3
		Minimum	8' - 3"	16' - 5"	8' - 3"	16' - 5"
		Preferred	8' - 3"	16' - 5"	8' - 3"	16' - 5"
G	CLEAR OVERHEAD ahead of plummet	Designation	G-1	E-1	G-3	E-3
		Minimum	16' - 5"	16' - 5"	16' - 5"	16' - 5"
		Preferred	16' - 5"	16' - 5"	16' - 5"	16' - 5"
	DEPTH OF	Designation		H-1		H-3

H	WATER at plummet (minimum required)	Minimum		11' - 2"		12' - 2"
		Preferred		11' - 6"		12' - 6"
J K	DISTANCE AND DEPTH ahead of plummet	Designation	J-1	K-1	J-3	K-3
		Minimum	16' - 5"	10' - 10"	19' - 9"	11' - 10"
		Preferred	16' - 5"	11' - 2"	19' - 9"	12' - 2"
L M	DISTANCE AND DEPTH each side of plummet	Designation	L-1	M-1	L-3	M-3
		Minimum	5'	10' - 10"	6' - 7"	11' - 10"
		Preferred	6' - 7"	11' - 2"	8' - 3"	12' - 2"
N	MAXIMUM SLOPE TO REDUCE DIMENSION beyond full requirements	Pool depth Ceiling Ht	30 degrees 30 degrees	Note 1: Dimensions C (plummet t additional width(s). Note 2: All dimensions rounded u		

TABLE 402.12(6)
Matrix of Springboard Dimensions for High School Competitive Diving

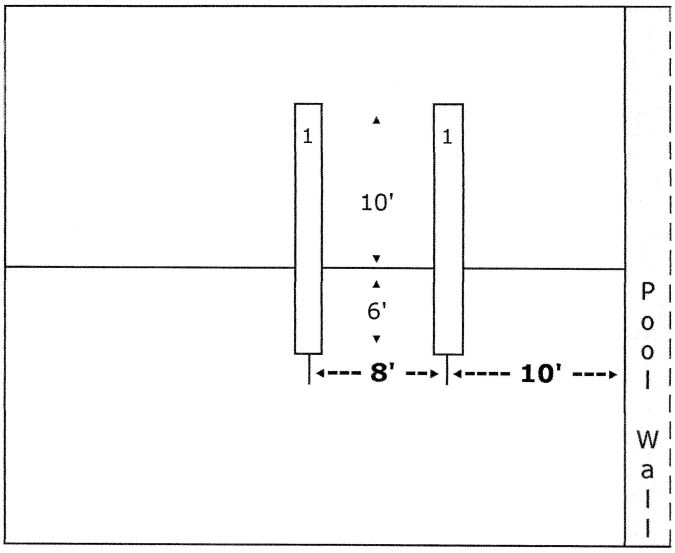
NATIONAL FEDERATION OF STATE HIGH SCHOOL ASSOCIATIONS (NFHS)				
	Rule 9, Section 1, Article 1	**Board Height**	**U.S Dimensions**	**Metric Dimensions**
	Length of Board	1m	16'	4.877m

	Width of Board	1m	20"	.508m
a.	End of springboard Back to Pool Wall	1m	6'	1.829m
b.	Center of board to center of another board	1m	8'	2.438m
c.	Center of board to pool side wall	1m	10'	3.048m
d.	End of springboard to forward pool wall	1m	29'	8.839m
e.	Top of springboard to ceiling overhead	1m	16'	4.877m
f.	Water depth at any point 2' to 5' in front of the end of the board, must be 12' (3.658m) or more, except for pools constructed prior to January 1987, where water depth 2 to 5 feet in front of the end of the board must be a minimum of 10 feet (3.045m).	1m	12' /10'	3.658 / 3.048m

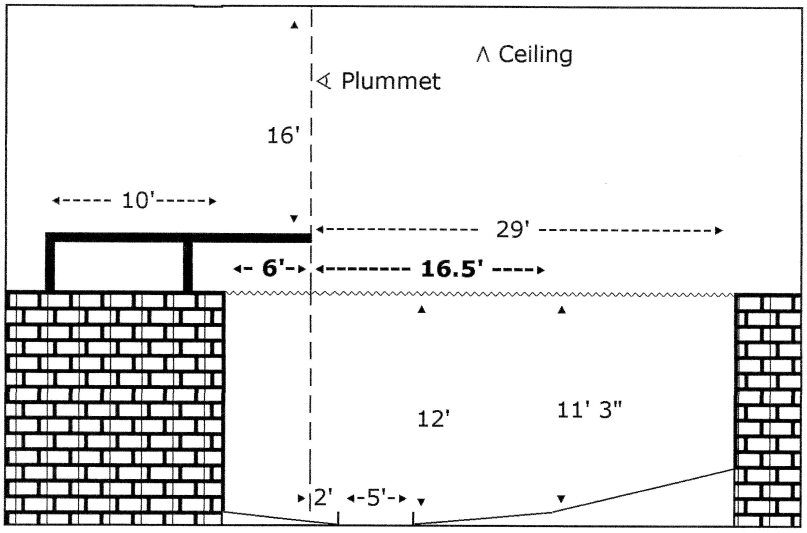
g.	Maximum depth reduction rate of diving pools which do not exceed minimum depth requirement shall be 6 1/4% for a distance of 16.5' (5.0m) forward (6.096m) from the end of the board and 6' (1.829m) back and to the sides. Deeper pools may have proportionally steeper depth reduction rates.	1m	**	**

FIGURE [Add # Here]
FIGURE FOR TABLE 402.12(6)

MINIMUM DIVING WATER ENVELOPE FOR HIGH SCHOOL POOLS WITH TWO 1 METER SPRINGBOARDS



Overhead View



Side View

Reason: Architects, contractors, and zoning officers have often asked for a conversion table of the FINA dimensions to U. S. dimensions. The three national governing bodies have different diemnsional conversion standards. This information needs to be in this publication so that there is not misinterpretation of what is required in USA Diving, NCAA, and high school diving facilities to guard against a facility not being able to a sanction for competition.

Cost Impact: Will not increase the cost of construction
These dimensions are already a requirement for competition pools and therefore, there is no change in the cost of construction. Having this information all in one place might eliminate rework costs and lower the cost of installing these pools.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proponent wanted to present a floor modification to eliminate much of the proposal, however, the modification was ruled out of otrder by the committee chair. Therefore, the committee did not want to consider the proposal as submitted as the proponent wanted to make major changes.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Swimming Pool and Spa Code

402.2 Manufactured and fabricated diving equipment. Manufactured and fabricated diving equipment shall be in accordance with ~~Section 808~~ this section and shall be designed for swimming pool use.

402.3 Installation. The installation of manufactured diving equipment shall be in accordance with Sections 402.3 through ~~402.12~~ 402.14. Manufactured diving equipment shall be located in the deep area of the pool so as to provide the minimum dimensions shown in Table 402.12 and shall be installed in accordance with the manufacturer's instructions. Installation and use instructions for manufactured diving equipment shall be provided by the manufacturer and shall specify the minimum water dimensions required for each diving board and diving stand combination. The manufacturer's instructions shall refer to the water envelope type by dimensionally relating their products to Point A on the water envelopes shown in Table 402.12. The diving board manufacturer shall specify which boards fit on the design pool geometry types as indicated in Table 402.12.

Commenter's Reason: This public comment removes most of the original proposal but leaves two changes that are necessary. First, it removes the reference to Section 808, which is residential inground pool diving requirements and correctly references the public pool diving section, which is Section 402 (the section being addressed in this public comment). Second, it changes 402.12 to 402.14 to capture all of the subsections within 402, to ensure that manufactured diving equipment is installed per all the requirements found within Section 402.

SP30-15
SECTION 612 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Add new text as follows:

SECTION 612
SPRAY PADS

612.1 General. Spray pads shall comply with this section.

612.2 Safety hazards. Parts of the spray pad that can be accessed by the users of the spray pad shall be designed and constructed to not present safety hazards to the users.

612.3 Walking surface at perimeter. A walking surface of not less than 4 foot (1296 mm) in width shall be provided around the perimeter of the splash zone. The walking surface shall be sloped away from the splash zone. The drainage from the perimeter walking surface shall be directed to deck drains or other surface water disposal systems. Walking surfaces shall not drain to the surge basin for the spray pad.

612.4 Splash zone. The splash zone shall comply with Sections 612.4.2 through 612.4.5.

612.4.1 Absence of standing water. Surfaces in the splash zone shall be designed to not have standing water.

612.4.2 Slope to drain. The surfaces of the splash zone shall slope to drain water to the surge basin of the circulation system for the spray pad.

612.4.3 Nozzles on walking surfaces. Water nozzles that spray from walking surfaces shall be flush with those surfaces. Openings in such nozzles shall not exceed ½ inch (12.7 mm).

612.4.4 Other nozzles. Nozzles, other than those on walking surfaces, shall be designed to be clearly visible.

612.4.5 Potable water for foggers and misters. Foggers and misters that produce finely atomized water mists shall be supplied only with potable water. Foggers and misters shall not be supplied with water from the surge basin.

612.5 Circulation system. The circulation system shall consist of the equipment covered in Sections 612.5.1 through 612.5.3

612.5.1 Catch screen. A catch screen or basket shall be provided for splash zone drainage piping connections to the surge basin. The screen or basket shall be designed to prevent larger debris from entering the surge basin.

612.5.2 Surge basin.
A surge basin shall be provided having a capacity of not less than 4000 gallons or the number of gallons that can be pumped in one minute by the combination of all spray pad and recirculation pumps, whichever is greater.

612.5.2.1 Basin materials and design. The basin shall be constructed of materials which are inert, corrosion resistant and non toxic. Basins shall be constructed of concrete, fiberglass, high density polyethylene, stainless steel or other approved materials. The design of basins shall anticipate all anticipated loadings under full and empty conditions. Such loading conditions shall be determined by a design professional who has experience with the design of public pools.

612.5.2.2 Basin access. The basin shall be designed for access for cleaning and inspection. Not less than one access of opening of not less than 3 foot by 3 foot (914mm by 914 mm) shall be provided for placement of a ladder into the basin. All access opening covers shall be locked or shall require tools to open.

612.5.2.3 Circulation pump.
The circulation pump shall be sized to turnover the surge basin capacity in ½ hour or less. The intake for the pump shall be located at the lowest elevation of the surge basin Where separate pumps are installed for the circulation system and the spray nozzles system, the suction intakes for those pumps shall be located on opposite ends of the basin.

612.5.2.4 Spray nozzles and water feature pumps. Spray nozzles and water feature systems shall be be supplied water from the discharge of the recirculation pump or from separate pumps. Where separate pumps are installed for the recirculation system and a spray nozzles or water feature system, the suction intakes for spray nozzles and water feature pump systems shall be located adjacent to the recirculation pump discharge point in the basin.

612.5.2.5 Pump control. The controls for spray nozzles and water feature pump systems shall prevent operation of those pumps when the recirculation pump is not operating.

612.5.2.6 Disinfection system. In addition to filtration and sanitizing equipment required by Chapter 3 and this chapter, the recirculation system shall be equipped with an ultraviolet light disinfection unit. The unit shall listed and labeled to NSF 50. Where a method other than ultraviolet disinfection is being considered as an alternative method in accordance with Section 104.9, such method shall provide a reduction in the level of cryptosporidium that is equal to or greater than the ultraviolet light method. The alternative method's cryptosporidium reduction capability shall be determined by a nationally recognized testing laboratory.

612.5.2.6.1 UV unit location.
The ultraviolet light disinfection unit shall be located on the recirculation system and upstream of any water connection for, or separate pump intake for, supplying spray nozzles or water features.

612.5.2.6.2 UV intensity meter. The chamber of the ultraviolet light disinfection unit shall be equipped with a ultraviolet light intensity meter that is located opposite and at the greatest water depth from the ultraviolet light

source. The meter shall be filtered to restrict its sensitivity to the disinfection spectrum.

612.5.2.7 Control of pumps by UV meter.
The ultraviolet light intensity meter shall interlock with the controls for pumps that supply water for the spray nozzles and water features systems. Where the ultraviolet light intensity meter senses an ultraviolet dosage rate of less than 40 mJ/cm^2, the interlock shall lock out those pumps from operation.

612.5.2.8 Make-up water system.
The surge basin shall be provided with a make-up water system that is supplied with potable water. The potable water supply shall be protected against backflow in accordance with the *International Plumbing Code*.

612.5.3 Diverter valve. The drainage piping for the splash zone shall have a diverter valve to divert splash zone drainage away from the surge basin when the spray pad is not in operation. The diverted drainage shall be to an approved place of disposal.

612.6 Operating instructions. Operating instructions for spray pads shall require that the circulation system be operated continuously for not less than 4 turnovers prior to the pumps for the spray nozzles and water features systems being turned on for use of the spray pad.

612.7 Lighting. Where a spray pad will be in operation at night or during periods of inadequate natural lighting, artificial lighting shall be provided. Such lighting shall be installed in accordance with the manufacturer's instructions and NFPA 70.

Reason: In the last cycle, the APSP organization proposed similar language for these highly popular water play areas that are rapidly becoming an alternative for some public swimming pools in many jurisdictions across the country. The technical committee disapproved the proposal because the term that was used in the proposed language for naming these attractions was a trademarked term. (The proposed SPRAY PADS is not, to our knowledge, a trademarked term.) There was no disagreement by the committee that this information was needed for the code but the trademarked term just had to be changed. Unfortunately, the proposal was disapproved by the membership at final action hearing.
Waterparks have included these attractions in their array of fun things to do at the park for many years. As large waterparks are highly focused on the safety and cleanliness of all water used at the park, regulations didn't seem to be necessary for these attractions – the waterparks knew what to do, how to do it and have an excellent track record. However, as these types of attractions move into the public sector, many people who are responsible for choosing and operating this equipment might be lacking the (waterparks') knowledge about what is critical for a safe installation. Those involved in the pool and spa industry and those involved in operating public pools in jurisdictions across the country are well aware of a water contamination occurrence in one of these attractions at a Traverse City, MI city park not so long ago.

The ISPSC is the best place to install these requirements within the I-code family of codes as these attractions involve circulated and filtered water (similar to what a pool or spa uses) for recreational use even though such attractions do not involve users "bathing" (immersing themselves) in bodies of water.

The most recent edition of the California Building Code is reflective of many of the proposed concepts and details of the language of this proposal.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC). The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International

Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 10.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, the code is currently silent about these types of attractions which means that any supplier of these attractions could provide any kind of equipment (of safe design or not). In some cases, having these regulations in code will make the cost of some suppliers' attraction packages be more than if they did not have to comply with these minimum safety requirements. For other suppliers, these requirements are already included in their standard packages.

SP30-15 : 612 (New)-SNYDER4164

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Play areas such as these might be covered under amusement device regulations. Having a minimum surge tank size of the 4000 gallons might be excessive for a small spray pad area. However, this proposal is heading in the right direction.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Swimming Pool and Spa Code

612.4 Splash zone. The splash zone shall comply with Sections 612.4.2 through ~~612.4.5~~ 612.4.4.

612.4.3 Nozzles on walking surfaces within the spray pad splash zone. Water nozzles that spray from walking surfaces within the spray pad splash zone shall be flush with those surfaces. Openings in such nozzles shall not exceed ½ inch (12.7 mm).

612.4.4 Other nozzles. Nozzles, other than those on walking surfaces within the spray pad splash zone, shall be designed to be clearly visible.

612.5.1 Catch screen. A catch screen, filter or basket shall be provided for splash zone ~~drainage piping connections to the surge basin~~ recirculation and feature pumps. The screen, filter or basket shall be designed with

openings that do not exceed No. 20 United States standard mesh (0.0331 inches) [0.841 mm]. The screen, filter or basket assembly shall have the capacity to ~~prevent larger~~ retain an amount of debris ~~from entering the surge basin.~~ that is not less than would be expected to accumulate in a 24 hour period.

612.5.2 Surge basin. A surge basin shall be provided ~~having~~ . The basin shall have a capacity of not less than ~~4000~~ 1000 gallons or ten times the maximum number of gallons that can be pumped to water features in one minute ~~by the combination of all spray pad and recirculation pumps~~, whichever is greater. The surge basin shall be configured to limit the basin water level drop to not more than 15 percent of the basin's maximum water depth when all pumps are operating and the pump discharge piping is completely filled with water.

612.5.2.1 Basin materials and design. The basin shall be constructed of materials which are inert, corrosion resistant and non toxic. Basins shall be constructed of concrete, fiberglass, high density polyethylene, stainless steel or other *approved* materials. ~~The design of basins~~ Basin materials in contact with the water shall ~~anticipate~~ comply with material standards for potable water tanks. Basins shall be designed for all anticipated loadings under full and empty conditions. Such loading conditions shall be determined by a design professional who has experience with the design of public pools.

612.5.2.3 Circulation pump. The circulation pump shall be sized to turnover the surge basin capacity in ~~½ hour~~ 30 minutes or less. The intake for the pump shall be located at the lowest elevation of the surge basin Where separate pumps are installed for the circulation system and the spray nozzles system, the suction intakes for those pumps shall be located ~~on opposite ends of~~ as recommended by the ~~basin~~ manufacturer or design professional.

~~**612.4.5 Potable water for foggers and misters.** Foggers and misters that produce finely atomized water mists shall be supplied only with potable water. Foggers and misters shall not be supplied with water from the surge basin.~~

~~**612.5.2.6.2 UV intensity meter.** The chamber of the ultraviolet light disinfection unit shall be equipped with a ultraviolet light intensity meter that is located opposite and at the greatest water depth from the ultraviolet light source. The meter shall be filtered to restrict its sensitivity to the disinfection spectrum.~~

~~**612.5.2.7 Control of pumps by UV meter.** he ultraviolet light intensity meter shall interlock with the controls for pumps that supply water for the spray nozzles and water features systems. Where the ultraviolet light intensity meter senses an ultraviolet dosage rate of less than 40 mJ/cm^2, the interlock shall lock out those pumps from operation.~~

~~**612.5.3 Diverter valve.** The drainage piping for the splash zone shall have a diverter valve to divert splash zone drainage away from the surge basin when the spray pad is not in operation. The diverted drainage shall be to an approved place of disposal.~~

Commenter's Reason: Spray pads are currently not addressed in the ISPSC, but they are a type of water containment system used for aquatic recreation across the

country. Therefore, it is imperative this type of feature be added to the ISPSC to ensure minimum standards exist to safeguard the public who uses them. Various standards exist across the country and in some places no standards exist. This public comment addresses concerns of the committee by making changes to certain sections of the original proposal to better align with industry best practices in the area of spray pads. Specifically this public comment provides the following:

- 612.4.3 & 612.4.4 – clarity that the nozzles are within the spray pad splash zone; without this addition the terminology is vague and could be misinterpreted.
- 612.5.1 – includes filter as another alternative device to keep debris from surge tank and allows design professionals to size debris collection device to anticipated debris loads for each spray pad installation.
- 612.5.2 – changes the minimum surge tank from 4000 to 1000 gallons due to the fact 4000 gallons is more than needed in small spray pads; the goal is to have enough water not to allow the tank level to drop and cause cavitation or lose prime.
- 612.5.2.1 – provides for consistency with water tower standards in regard to surface standard.
- 612.5.2.3 – changes hours to minutes to be consistent with what is used elsewhere in the code when timeframes are less than 1 hour and refers one to either the manufacturers recommendations or design professional in regard to placement of suction intakes due to the fact multiple options exist; the original language boxed one in to only one acceptable means of placement.
- 612.4.5 - removes this section because it is not needed, as all features must run through a UV system.
- 612.5.2.6.2 & 612.5.2.7 — removes sections that restrict design professionals to a single method of determining UV disinfection levels that has proven unreliable in prior installations.
- 612.5.3 – removes section that adds design complexity by requiring automated valving or that relies on daily operation of manual values to ensure proper splash zone drainage in favor of design professionals properly sizing surge tanks.

SP30-15

SP32-15
809.3

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

809.3 Secondary entries and exits. Where water depth in the deep area of a pool exceeds 5 feet (1524 mm), a means of entry and exit shall be provided in the deep area of the pool.

> **Exception:** Where a means of exit from the deep end of a pool would present a potential hazard, handholds shall be provided for the means of exit.

Reason: Since the APSP-5 2011 standard was published, several calls have been received from builders and fiberglass pool manufacturers expressing concern that the language in Section 6.1 of APSP-5 is creating problems both in construction and for fiberglass pool manufacturers with existing molds. According to the language in the 2011 edition of APSP-5, these existing molds can no longer be used.
The existing language has been modified to help clarify and remedy this section. Hopefully, it will eliminate the problems encountered by builders and manufacturers, while at the same time, eliminate the misperception of a shallow end being the deep end based on the assumption that a ladder signifies the deep end.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC). The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 9.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP32-15 : 809.3-SNYDER4171

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The language aligns the code with the APSP 5 standard.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Swimming Pool and Spa Code

809.3 Secondary entries and exits. Where water depth in the deep area of a pool exceeds 5 feet (1524 mm), a means of entry and exit as indicated in Section 809.2 shall be provided in the deep area of the pool.

> **Exception:** Where the required placement of a means of exit from the deep end of a pool would present a potential hazard, handholds shall be provided as an alternative for the means of exit.

Commenter's Reason: The original proposal addressed concerns that certain types of pools would not be allowed if this exception were not added (which was consistent with this also having been addressed in the ANSI/APSP/ICC 5 Residential Inground Standard). However, an additional modification to the proposal needs to be made due to the fact a handhold is not a means of exit under the ISPSC, but the way the proposal is currently written would suggest it is; therefore, we are suggesting the public comment to address this concern.

The public comment ensures that a handhold can be utilized in lieu of a means of exit, at the same time clarifying that a handhold is not a means of exit. If, for example, a vanshing edige pool on a moutainside was being built, if a means of exit were provided it would constitute a potential hazard as the user could end up over the side of the mountain if they exited on the vanishing end of the pool. Without the public comment it would imply a handhold is a means of exit, meaning a handhold could be used to exit over a mountainside, which we believe is not the intent. Rather, the public comment defines the handhold as an alternative to exiting; allowing the bather to "hand-walk" along the edge to safey.

SP32-15

FG9-15
202

Proposed Change as Submitted

Proponent : James Ranfone, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

SECTION 202 DEFINITIONS

THERMOSTAT.

Electric switch type.
A device that senses changes in temperature and controls electrically, by means of separate components, the flow of gas to the burner(s) to maintain selected temperatures.

~~**Integral gas valve type.** An automatic device, actuated by temperature changes, designed to control the gas supply to the burner(s) in order to maintain temperatures between predetermined limits, and in which the thermal actuating element is an integral part of the device.~~

1. ~~Graduating thermostat. A thermostat in which the motion of the valve is approximately in direct proportion to the effective motion of the thermal element induced by temperature change.~~
2. ~~Snap-acting thermostat. A thermostat in which the thermostatic valve travels instantly from the closed to the open position, and vice versa.~~

Reason: The term integral gas valve type thermostat does not appear in the IFGC.

Cost Impact: Will not increase the cost of construction
There are no specific code requirements for this type of thermostat.

FG9-15 : 202-THERMOSTAT-RANFONE4947

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Approval was based on the proponent's published reason statements.

Assembly Motion: Disapprove
Online Vote Results: Successful
Support: 53.15% (59) Oppose: 46.85% (52)
Assembly Action : Disapproved

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action

requests Disapprove.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Disapprove was successful by a vote of 53.15% (59) to 46.85% (52) by eligible members online during the period of May 14 - May 28, 2015.

Public Comment 2:

Proponent : Brent Ursenbach, representing Utah Chapter ICC (bursenbach@slco.org) requests Disapprove.

Commenter's Reason: The reason statement for the original proposal; stating the term integral gas valve type thermostat does not appear in the IFGC is not completely accurate. Referring to ***IFGC Section 615 Sauna Heaters***, ***615.6 Heat and time controls.*** *Sauna heaters shall be equipped with a thermostat which will limit room temperature to 194°F (90°C). If the thermostat is not an integral part of the sauna heater, the heat-sensing element shall be located within 6 inches (152 mm) of the ceiling. If the heat-sensing element is a capillary tube and bulb, the assembly shall be attached to the wall or other support, and shall be protected against physical damage.*
The last sentence in this section refers to a *heat sensing element that is a capillary tube and bulb.* Capillary tube and bulb thermostats/heat sensing units often are integral with the gas valve. They are not electric, rather they are an integral type gas valve.

Integral type thermostats are found in various gas appliances including decorative appliances, cooking appliances, wall furnaces, floor furnaces and sauna heaters.

An example of an integral gas valve type thermostat is a Robertshaw 4290-006 hydraulic thermostat, manufactured specifically for gas cooking appliances. The dial for temperature selection, the hydraulic sensing bulb and the gas valve are all integral, all part of a single assembly.

This definition should not be removed from the code.

FG9-15

FG10-15
202

Proposed Change as Submitted

Proponent : James Ranfone, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Delete and substitute as follows:

SECTION 202 DEFINITIONS

UNIT HEATER.

~~**High-static pressure type.** A self-contained, automatically controlled, vented *appliance* having integral means for circulation of air against 0.2 inch (15 mm H_2O) or greater static pressure. Such *appliance* is equipped with provisions for attaching an outlet air duct and, where the *appliance* is for indoor installation remote from the space to be heated, is also equipped with provisions for attaching an inlet air duct.~~

~~**Low-static pressure type.** A self-contained, automatically controlled, vented *appliance*, intended for installation in the space to be heated without the use of ducts, having integral means for circulation of air. Such units are allowed to be equipped with louvers or face extensions made in accordance with the manufacturer's specifications.~~

A self-contained, automatically controlled, vented, fuel-gas-burning space-heating appliance, intended for installation in the space to be heated without the use of ducts, and having integral means for circulation of air.

Reason: The IFGC code requirements do not differentiate between high- and low-static unit heaters and the terms do not appear in the code. The revised simplified definition is taken from the revised definition in the 2015 *National Fuel Gas Code*, ANSI Z223.1/NFPA 54. This proposal is offered solely for the purpose of coordinating the IFGC with ANSI Z223.1 (NFGC). This text is offered "as is" for the IFGC and it is not intended that such text be modified from a technical standpoint. The subject text was revised in the 2015 NFGC (ANSI Z223.1) and this proposal will cause the IFGC text to be consistent with such revised text in ANSI Z223.1 (NFGC).

Cost Impact: Will not increase the cost of construction
The definition does not change the installation requirements for unit heaters.

FG10-15 : 202-UNIT HEATER (New)-RANFONE4938

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Approval was based on the proponent's published reason statements.

Assembly Motion: As Modified
Online Vote Results: Successful

Support: 80.18% (89) Oppose: 19.82% (22)

Assembly Action : Approved as Modified

Online Floor Modification:

UNIT HEATER. A self-contained, automatically controlled, vented, fuel-gas-burning space-heating appliance, intended for installation in the space to be heated ~~without the use of ducts,~~ and having integral means for circulation of air.

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action

requests Approve as Modified by Successful Assembly Action.

UNIT HEATER. A self-contained, automatically controlled, vented, fuel-gas-burning space-heating appliance, intended for installation in the space to be heated ~~without the use of ducts,~~ and having integral means for circulation of air.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Approve as Modified was successful by a vote of 80.18% (89) to 19.82% (22) by eligible members online during the period of May 14 - May 28, 2015.

Public Comment 2:

Proponent : Brent Ursenbach, representing Utah Chapter ICC (bursenbach@slco.org) requests Approve as Modified by Successful Assembly Action.

UNIT HEATER. A self-contained, automatically controlled, vented, fuel-gas-burning space-heating appliance, intended for installation in the space to be heated ~~without the use of ducts,~~ and having integral means for circulation of air.

Commenter's Reason: The successful assembly action deleted the phrase ~~without the use of ducts~~ from the original proposal. The original proposal failed to recognize many unit heater manufacturers produce unit heaters designed with centrifugal high static blower, specifically to move air through duct systems. The original proposal essentially defines in code, that all unit heaters are intended for installation without the use of ducts. Code officials will through this definition, cite unit heaters with ducts, to be in violation of the code. See the following websites for unit heaters in current production, designed for use with ducts.
The Reznor Unit Heater Catalog includes Models UDBS, UDBP and B, all equipment with centrifugal (duct-able) blowers capable of handling up to .5" w.c. of external static pressure on smaller models and up .75" w.c. external static pressure on larger models. http://www.rezspec.com/files/C-UH_vH11.pdf

The Modine Unit Heater Catalog includes Models HDB, BDP, BTS and BTC, all with centrfugal blowers designed for use with ducts.
http://www.modine.com/publications/litsearch.php?srchcrit=75-136

Sterling TC and SC series unit heaters:
http://www.sterlinghvac.com/products/indoor/blower-unit-heaters.asp#.VanFm_lVhBc

FG10-15

FG11-15
303.3

Proposed Change as Submitted

Proponent : Timothy Manz, representing Association of Minnesota Building Officials (tmanz@ci.blaine.mn.us)

2015 International Fuel Gas Code

Revise as follows:

303.3 Prohibited locations. Appliances shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or surgical rooms, or in a space that opens only into such rooms or spaces, except where the installation complies with one of the following:

1. The *appliance* is a direct-vent *appliance* installed in accordance with the conditions of the listing and the manufacturer's instructions.
2. Vented room heaters, wall furnaces, vented decorative appliances, vented gas fireplaces, vented gas fireplace heaters and decorative appliances for installation in vented solid fuel-burning fireplaces are installed in rooms that meet the required volume criteria of Section 304.5.
3. A single wall-mounted unvented room heater is installed in a bathroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 6,000 Btu/h (1.76 kW). The bathroom shall meet the required volume criteria of Section 304.5.
4. A single wall-mounted unvented room heater is installed in a bedroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 10,000 Btu/h (2.93 kW). The bedroom shall meet the required volume criteria of Section 304.5.
5. The *appliance* is installed in a room or space that opens only into a bedroom or bathroom, and such room or space is used for no other purpose and is provided with a solid weather-stripped door equipped with an *approved* self-closing device. All *combustion air* shall be taken directly from the outdoors in accordance with Section 304.6.
6. <u>A gas clothes dryer is installed in a bathroom or toilet room and a permanent opening having an area of not less than 100 square inches is provided that allows the toilet room or bathroom to communicate with a common hallway or common space.</u>

Reason: In older homes the electrical service is not large enough for an electric dryer, so installing a gas dryer is the only option. In many homes it is desirable to have the gas dryer in an over-sized bathroom or toilet room on an upper floor. This provision provides a safe installation by requiring a minimum 100 square inch opening to a common space that ensures adequate natural ventilation is provided.

Cost Impact: Will not increase the cost of construction
This provision will not increase the cost of construction since it provides flexibility in the dryer installation.

Public Hearing Results

Committee Action: Approved as Modified

Modification:

303.3 Prohibited locations. Appliances shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or surgical rooms, or in a space that opens only into such rooms or spaces, except where the installation complies with one of the following:

1. The *appliance* is a direct-vent *appliance* installed in accordance with the conditions of the listing and the manufacturer's instructions.
2. Vented room heaters, wall furnaces, vented decorative appliances, vented gas fireplaces, vented gas fireplace heaters and decorative appliances for installation in vented solid fuel-burning fireplaces are installed in rooms that meet the required volume criteria of Section 304.5.
3. A single wall-mounted unvented room heater is installed in a bathroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 6,000 Btu/h (1.76 kW). The bathroom shall meet the required volume criteria of Section 304.5.
4. A single wall-mounted unvented room heater is installed in a bedroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 10,000 Btu/h (2.93 kW). The bedroom shall meet the required volume criteria of Section 304.5.
5. The *appliance* is installed in a room or space that opens only into a bedroom or bathroom, and such room or space is used for no other purpose and is provided with a solid weather-stripped door equipped with an *approved* self-closing device. All *combustion air* shall be taken directly from the outdoors in accordance with Section 304.6.
6. A ~~gas~~ clothes dryer is installed in a residential bathroom or toilet room ~~and~~ having a permanent opening ~~having~~ with an area of not less than 100 square inches ~~is~~

~~provided~~ that ~~allows the toilet room or bathroom to communicate~~ communicates with a ~~common hallway~~ space outside of a sleeping room, bathroom, toilet room, or ~~common space~~ storage closet.

Committee Reason: Approval was based on the proponent's published reason statement. The modification replaced the undefined terms common hallway and common space with references to the spaces outside of the room containing the dryer.

Assembly Motion: **Disapprove**
Online Vote Results: **Successful**
Support: 70.09% (75) Oppose: 29.91% (32)
Assembly Action : **Disapproved**

Individual Consideration Agenda

Public Comment 1:

Proponent : Bruce Swiecicki, representing Self (bswiecicki@npga.org) requests Approve as Modified by Committee.

Commenter's Reason: The fact is that gas clothes dryers are being installed and used in residential bathrooms. This is necessary because of the shift to scaled down living spaces being utilized today. It is necessary for the code to address these installations so they can be made in a safe manner.

Public Comment 2:

Proponent : Steven Rosenstock, Edison Electric Institute, representing Edison Electric Institute (srosenstock@eei.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Fuel Gas Code

303.3 Prohibited locations. Appliances shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or surgical rooms, or in a space that opens only into such rooms or spaces, except where the installation complies with one of the following:

1. The *appliance* is a direct-vent *appliance* installed in accordance with the conditions of the listing and the manufacturer's instructions.
2. Vented room heaters, wall furnaces, vented decorative appliances, vented gas fireplaces, vented gas fireplace heaters and decorative appliances for installation in vented solid fuel-burning fireplaces are installed in rooms that meet the required volume criteria of Section 304.5.
3. A single wall-mounted unvented room heater is installed in a bathroom and such unvented room heater is equipped as

specified in Section 621.6 and has an input rating not greater than 6,000 Btu/h (1.76 kW). The bathroom shall meet the required volume criteria of Section 304.5.

4. A single wall-mounted unvented room heater is installed in a bedroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 10,000 Btu/h (2.93 kW). The bedroom shall meet the required volume criteria of Section 304.5.
5. The *appliance* is installed in a room or space that opens only into a bedroom or bathroom, and such room or space is used for no other purpose and is provided with a solid weather-stripped door equipped with an *approved* self-closing device. All *combustion air* shall be taken directly from the outdoors in accordance with Section 304.6.
6. A gas clothes dryer is installed in a residential bathroom or toilet room having a permanent opening with an area of not less than 100 square inches that communicates with aspace outside of a sleeping room, bathroom, toilet room, or storage closet.

Commenter's Reason: This addition will clarify the code, and avoid confusion if a different type of dryer (such as an electric dryer) is installed.

Public Comment 3:

Proponent : Assembly Action requests Disapprove.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Disapprove was successful by a vote of 70.09% (75) to 29.91% (32) by eligible members online during the period of May 14 - May 28, 2015.

FG11-15

FG12-15

303.3.1 (New)

Proposed Change as Submitted

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Fuel Gas Code

Add new text as follows:

303.3.1 Fireplaces and decorative appliances in Group I-2 Condition 2 occupancies. Gas fireplace appliances and decorative gas appliances shall be prohibited in Group I-2, condition 2 occupancies except in public lobby and waiting areas that are not within smoke compartments containing patient sleeping areas. Such fireplace appliances and decorative appliances shall be installed in accordance with all of the following:

1. The appliances shall be vented to the outdoors.
2. The appliances be of the direct-vent type.
3. The appliances shall automatically shut off upon activation of the fire alarm system serving the occupancy.
4. The appliance controls shall be located where they can be accessed only by facility staff.
5. A carbon monoxide detector with a local alarm shall be provided and installed in accordance with Section 915 of the *International Fire Code*.

Reason: The AHC committee is recommending limitations for the use of fuel gas-fired fireplaces and decorative equipment and the restriction of solid-fuel burning fireplaces and appliances in the Group I-2, Condition 2 occupancy. Please note: these are not new requirements for the Group I-2 Occupancy facilities but are needed in the I-Codes for coordination of the long-standing provision of the construction and operational requirements for healthcare facilities.

It is standard practice and operational procedure to control the ignition sources in healthcare occupancies that can contain combustible, flammable (and sometimes even explosive) material. Fire risks need to be limited to the maximum extent feasible and specific requirements for these facilities are not currently or are not completely addressed in the I-Codes.

The language proposed in the IFGC prescribes limitations and conditions to provide the necessary safety and limitations of hazards from within the healthcare environments to the fire and ignition sources inherent to all gas-fired fireplaces and appliances. Combustion air has been restricted from being drawn from healthcare environments extending beyond the last decade and is not a new requirement.

The physical separation of the combustion chambers of gas-fired fireplaces and equipment is required to separate and provide a barrier between the ignition sources and the environmental air within healthcare occupancies. All combustion air is required to be taken directly from the exterior of the building in accordance with an existing exception that is provided for in IFGC Section 303.3.

The placement of solid fuel burning fireplaces and appliances, both decorative and heating, creates conditions where open flames that are not otherwise able to be controlled or extinguished like the similar gas-fed and fired appliances. This is why the Adhoc Healthcare Committee is proposing their restriction instead of

a limitation with operational and special control equipment.

The code sections that address the installation limitations of fuel gas-fired fireplaces and appliances will also provide alternative means for compliance for existing facilities. Given the hazards present with these appliances in the Group I-2, Condition 2 Occupancies, the proposed IFC requirements will be 'retro-active' requirements for healthcare occupancies (Group I-2);

The proposals to the IFC that are being put forth by the Adhoc Healthcare Committee have been drafted to clarify, restrict and limit the ignition source hazards in healthcare occupancies and also will reference similar requirements being proposed in the IBC, IMC AND IFGC. For instance, solid fuel heating appliances are limited by other requirements of the IMC which is why heating appliances are not needed to be referenced in this section of the *IFGC.*

There was a concern mentioned during testimony at the code hearings for the 2012 I-codes that the AHC code change proposals placing restrictions on solid fuel burning fireplaces and appliances and fuel gas-fired fireplaces and appliances might be misinterpreted to prohibit mechanical heating equipment elsewhere regulated in the IMC.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website.http://www.iccsafe.org/cs/AHC/Pages/default.aspx

Cost Impact: Will not increase the cost of construction
Wood burning fireplaces are not permitted by the federal CMS regulations, therefore, there is no change in cost of construction.

FG12-15 : 303.3.1 (New)-WILLIAMS4239

Public Hearing Results

Committee Action: Approved as Modified

Modification:

303.3.1 Fireplaces and decorative appliances in Group I-2 Condition 2 occupancies. Gas fireplace appliances and decorative gas appliances shall be prohibited in Group I-2, condition 2 occupancies except where such appliances are *direct-vent appliances* installed in public lobby and waiting areas that are not within smoke compartments containing patient sleeping areas. ~~Such fireplace appliances and decorative appliances shall be installed in accordance with all of the following:~~

1. ~~The appliances shall be vented to the outdoors.~~
2. ~~The appliances be of the direct-vent type.~~
3. ~~The appliances shall automatically shut off upon activation~~

~~of the fire alarm system serving the occupancy.~~

4. ~~The appliance controls shall be located where they can be accessed only by facility staff.~~
5. ~~A carbon monoxide detector with a local alarm shall be provided and installed in accordance with Section 915 of the International Fire Code~~.

Committee Reason: Approval was based on the proponent's published reason statements. The modification deletes the list of 5 requirements, some of which are already addressed by the codes. Items 1 and 2 in the list are appropriately combined and located in the main paragraph. Item 4 would be difficult to enforce.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : John Williams, CBO, representing Adhoc Healthcare Committee (AHC@iccsafe.org) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Fuel Gas Code

303.3.1 Fireplaces and decorative appliances in Group I-2 Condition 2 occupancies. Gas fireplace appliances and decorative gas appliances shall be prohibited in Group I-2, condition 2 occupancies except where such appliances are *direct-vent appliances* installed in public lobby and waiting areas that are not within smoke compartments containing patient sleeping areas. The appliance controls shall be located where they can be accessed only by facility staff. Such fireplaces shall comply with Sections 501.2 and 604.1 and Section 915 of the *International Fire Code*.

Commenter's Reason: The committee was concerned that the other criteria are already addressed elsewhere, which is generally the case. However due to the unique application to Group I-2 Condition 2 occupancies the sections addressing these criteria need to be referenced. The one criteria that is not addressed is the access only by facility staff, which is a key requirement to meet current federal regulations. This type of access can be in a separate room, located at a nurses station or similar staff area, or a key switch at the unit where the staff is the only group carrying the key. The language selected for this public comment would cover any of those solutions.
The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: Adhoc Healthcare.

FG12-15

FG13-15
303.7

Proposed Change as Submitted

Proponent : Guy McMann, Jefferson County Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Fuel Gas Code

Revise as follows:

303.7 Pit locations. Appliances installed in pits or excavations shall not come in direct contact with the surrounding soil and shall be installed not less than 6 inches above the pit or excavation floor. The sides of the pit or excavation shall be held back a minimum of 12 inches (305 mm) from the *appliance*. Where the depth exceeds 12 inches (305 mm) below adjoining grade, the walls of the pit or excavation shall be lined with concrete or masonry, such concrete or masonry shall extend a minimum of 4 inches (102 mm) above adjoining grade and shall have sufficient lateral load-bearing capacity to resist collapse. Excavation on the control side of the appliance shall extend not less than 30 inches (762 mm) horizontally from the appliance. The *appliance* shall be protected from flooding in an *approved* manner.

Reason: This section lacks some detail in floor and control side language. This modification completes this section and has all the information necessary for a code compliant installatoin.

Cost Impact: Will not increase the cost of construction
There will be no additional cost as this is only a correlation between codes to make them consistent with each other.

FG13-15 : 303.7-MCMANN3367

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposed requirement will increase the cost of construction by enlarging the pit on the control side of the appliance. There is no substantiation for the elevation height above the pit floor.

Assembly Motion: As Modified
Online Vote Results: Successful
Support: 60.91% (67) Oppose: 39.09% (43)
Assembly Action : Approved as Modified

Online Floor Modification:

303.7 Pit locations. Appliances installed in pits or excavations shall not come in direct contact with the surrounding soil and shall be installed not less than ~~6~~3 inches

above the pit or excavation floor. The sides of the pit or excavation shall be held back a minimum of 12 inches (305 mm) from the appliance. Where the depth exceeds 12 inches (305 mm) below adjoining grade, the walls of the pit or excavation shall be lined with concrete or masonry, such concrete or masonry shall extend a minimum of 4 inches (102 mm) above adjoining grade and shall have sufficient lateral load-bearing capacity to resist collapse. Excavation on the control side of the appliance shall extend not less than 30 inches (762 mm) horizontally from the appliance. The appliance shall be protected from flooding in an approved manner.

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action

requests Approve as Modified by Successful Assembly Action.

303.7 Pit locations. Appliances installed in pits or excavations shall not come in direct contact with the surrounding soil and shall be installed not less than ~~6~~3 inches above the pit or excavation floor. The sides of the pit or excavation shall be held back a minimum of 12 inches (305 mm) from the appliance. Where the depth exceeds 12 inches (305 mm) below adjoining grade, the walls of the pit or excavation shall be lined with concrete or masonry, such concrete or masonry shall extend a minimum of 4 inches (102 mm) above adjoining grade and shall have sufficient lateral load-bearing capacity to resist collapse. Excavation on the control side of the appliance shall extend not less than 30 inches (762 mm) horizontally from the appliance. The appliance shall be protected from flooding in an approved manner.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Approve as Modified was successful by a vote of 60.91% (67) to 39.09% (43) by eligible members online during the period of May 14 - May 28, 2015.

Public Comment 2:

Proponent : Bruce Swiecicki, representing National Propane Gas Association (bswiecicki@npga.org) requests Disapprove.

Commenter's Reason: The submitter does not indicate that there are problems in the field, only that the section "lacks detail." This is hardly a good reason to impose a non-justified 30-inch spacing requirement to access controls on the appliance. This is not a safety issue.

FG13-15

FG14-15

304.13(IFGS) (New)

Proposed Change as Submitted

Proponent : James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Add new text as follows:

304.13(IFGS) Existing appliances. Where an existing appliance is located within the conditioned space of an existing building envelope and where a building envelope component, other than roofiing material, is replaced or altered, the appliance installation shall be inspected to verify compliance with the provisions of Section 304 and Chapter 5. Where an appliance installation does not comply with Section 304 and Chapter 5, it shall be altered as necessary to be in compliance with such.

Reason: AGA is proposing an extract of section 9.1.24 from ANSI Z223.1, National Fuel Gas Code.
The code requirement would address renovations to existing buildings that could impact the supply of combustion air and the performance of venting systems. AGA is aware of weatherization programs that fail to consider the importance of ensuring that existing gas appliance installations continue to meet the IFGC combustion air and venting requirements when efforts to reduce air infiltration are undertaken. This proposal is offered solely for the purpose of coordinating the IFGC with ANSI Z223.1 (NFGC). This text is offered "as is" for the IFGC and it is not intended that such text be modified from a technical standpoint. The subject text was revised in the 2015 NFGC (ANSI Z223.1) and this proposal will cause the IFGC text to be consistent with such revised text in ANSI Z223.1 (NFGC).

Cost Impact: Will increase the cost of construction
The cost to inspect appliances will be added to projects that alter exterior building components. There may be additional costs to bring the appliance installation up to compliance with the IFGC. These are necessary costs to ensure the life-safety of the building occupants.

FG14-15 : 304.13 (IFGS) (New)-RANFONE4964

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Approval was based on the proponent's published reason statements.

Assembly Motion: **Disapprove**
Online Vote Results: **Successful**
Support: 71.05% (81) Oppose: 28.95% (33)
Assembly Action : **Disapproved**

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action requests Disapprove.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Disapprove was successful by a vote of 71.05% (81) to 28.95% (33) by eligible members online during the period of May 14 - May 28, 2015.

FG14-15

FG20-15
401.10

Proposed Change as Submitted

Proponent : Bruce Swiecicki, representing National Propane Gas Association (bswiecicki@npga.org)

2015 International Fuel Gas Code

Delete and substitute as follows:

401.10 ~~Third-party testing and certification.~~ Piping materials standards. ~~Piping, tubing and fittings shall comply with the applicable referenced standards, specifications and performance criteria of this code and shall be identified in accordance with Section 401.9. Piping, tubing and fittings shall either be tested by an approved third-party testing agency or certified by an approved thirdparty certification agency.~~
Piping, tubing and fittings shall be manufactured to the applicable referenced standards, specifications and performance criteria listed in Section 403 of this code and shall be identified in accordance with Section 401.9.

Reason: This requirement in the International Fuel Gas Code has far ranging impact that wasn't anticipated at the code development hearings. In many cases, there are no certification or testing requirements to use for flare nuts, tees, pipe nipples, etc. The current requirement in section 401.10 is extremely onerous to the fuel gas industry with very little, if any, benefit to society. Piping, tubing and fittings are fabricated to various materials standards, such as those published by the American Society for Testing and Materials (ASTM) and the American Society of Mechanical Engineers (ASME). The material standards are shown in Section 403 of the IFGC. Third party testing or certification is a needless and unjustified expense to the industry. There has been no data presented to indicate that piping and fittings have been failing in the field.

Cost Impact: Will not increase the cost of construction
This proposal will markedly decrease the cost of construction without affecting the safety of the piping installation. The reason is that manufacturers will not be required to pay for a needless excercise of obtaining a third party certification to verify that their manufactured products comply with the appropriate material standards.

FG20-15 : 401.10-SWIECICKI5663

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Approval is based the proponent's published reason statements.

Assembly Motion: Disapprove
Online Vote Results: Failed
Support: 49.53% (53) Oppose: 50.47% (54)

Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Curtis Dady, representing Viega, LLC (curtis.dady@viega.us) requests Disapprove.

Commenter's Reason: The purpose of a 3rd party listing/certification is to confirm that a product has been independently evaluated other than by the manufacturer. Fuel gases are inherently dangerous and 3rd party certification requirements are a reasonable precaution to hold manufacturers to a minimum olevel of accountability, especially in the case of new and/or imported products. Viega strongly urges reconsideration of the previous approval.

FG20-15

FG22-15
404.6

Proposed Change as Submitted

Proponent : James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

404.6 ~~Underground penetrations prohibited.~~ Piping through foundation wall. ~~Gas~~
Underground piping ~~shall not penetrate building~~ installed through the outer foundation ~~walls at any point below grade. Gas *piping* shall enter and exit~~ or basement wall of a building ~~at~~ , shall be encased in a ~~point above grade and the annular~~ protective sleeve or protected by an approved device or method. The space between the ~~pipe~~ gas pipiing and the sleeve and between the sleeve and the wall shall be sealed to prevent entry of gas and water.

Reason: A change adopted into the 2015 edition prohibits gas piping from penetrating a foundation or basement wall below grade. This change was adoped without evidence that such penetrations have resulted in a safety concern. Below grade penetrations have a long been permitted and have proven to be a safe installation method. The revised language would reinstate this allowance. At least one State, Georgia, has amendedthe IFGC to delete the prohibition and allow below grade pentration similar to the proposed text. GA test is as follows: "404.6 Piping through foundation wall. Underground piping where installed below grade through the foundation or basement wall of a building, shall be encased is a protective pipe sleeve. The annular space between the gas piping and the sleeve shall be sealed."

Cost Impact: Will not increase the cost of construction
The reinstated installation practice will decrease installation costs.

FG22-15 : 404.6-RANFONE4976

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Approval was based on the proponent's published reason statements.

Assembly Motion: Disapprove
Online Vote Results: Successful
Support: 61.61% (69) Oppose: 38.39% (43)
Assembly Action : Disapproved

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action requests Disapprove.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Disapprove was successful by a vote of 61.61% (69) to 38.39% (43) by eligible members online during the period of May 14 - May 28, 2015.

FG22-15

FG27-15
408.4

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Fuel Gas Code

Revise as follows:

408.4 Sediment trap. Where a sediment trap is not incorporated as part of the appliance, a sediment trap shall be installed downstream of the appliance shutoff valve as close to the inlet of the appliance as practical. The sediment trap shall be ~~either~~ a tee fitting having a capped nipple of any length installed vertically in the bottommost opening of the run of the tee as illustrated in Figure 408.4 ~~or other device approved as an effective sediment trap~~. Illuminating appliances, ranges, clothes dryers, decorative vented appliances for installation in vented fireplaces, gas fireplaces and outdoor grills need not be so equipped.

Reason: The option for an "other device approved as an effective sediment trap" has been misinterpreted to allow configurations of tees that allow debris to pass over a nipple and cap installed in the branch opening of a tee. The current option was meant to address factory-built sediment trap devices, but they are not known to exist. This proposal clarifies the intent by referring to the run of tee which is consistent with the current FIGURE 408.4 of the code. The intent is not to allow the nipple cap to be connected to the branch opening of a tee because debris can simply jump over the branch opening.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

FG27-15 : 408.4-SNYDER3279

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The code official could always approve an alternative sediment trap device with or without the deleted text..

Assembly Motion: As Submitted
Online Vote Results: Successful

Support: 61.17% (63) Oppose: 38.83% (40)

Assembly Action : Approved as Submitted

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action

requests Approve as Submitted.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Approve as Submitted was successful by a vote of 61.17% (63) to 38.83% (40) by eligible members online during the period of May 14 - May 28, 2015.

FG27-15

FG30-15
409.5.3

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Fuel Gas Code

Revise as follows:

409.5.3 Located at manifold. Where the *appliance* shutoff valve is installed at a manifold, such shutoff valve shall be located within 50 feet (15 240 mm) of the *appliance* served, shall be located on the same floor level as the appliance served and shall be readily accessible and permanently identified. The *piping* from the manifold to within 6 feet (1829 mm) of the *appliance* shall be designed, sized and installed in accordance with Sections 401 through 408.

Reason: Section 409.5.3 allows the appliance shutoff valve to be located up to 50 feet from the appliance served. The code does not specify how the 50 foot limit is to be measured, therefore, it could be a straight line passing through walls and floors. This allowance could mean that a furnace in an attic could have its shutoff valve on a manifold that is located in the basement in a one, two or even 3 story building. Not only is this terribly inconvenient for the service personnel, but it could also be hazardous. In such cases, the service personnel would likely have to install a second shutoff valve at the appliance to save the hassle of running back and forth between the basement and the attic. There is no justification for allowing the only service shutoff valve to be so remote. The required shutoff valve is recognized as being there for servicing the appliance, however, it is not useful for servicing an appliance if it is located where it is impractical to access.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

FG30-15 : 409.5.3-SNYDER3281

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There is no history of a problem or evidence of a hazard with the current code allowance. The code already allows a redundant shutoff valve to be installed at the appliance location.

Assembly Motion: **As Submitted**
Online Vote Results: **Successful**
Support: 54.72% (58) Oppose: 45.28% (48)
Assembly Action : **Approved as Submitted**

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action

requests Approve as Submitted.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Approve as Submitted was successful by a vote of 54.72% (58) to 45.28% (48) by eligible members online during the period of May 14 - May 28, 2015.

Public Comment 2:

Proponent : Bruce Swiecicki, representing National Propane Gas Association (bswiecicki@npga.org) requests Disapprove.

Commenter's Reason: The proponent's reason is mostly concerned with doing away with an inconvenience for the service personnel. But there is nothing in the code that would prevent the installer from putting an appliance shutoff valve at each appliance.
So looking at the safety aspect, where is the problem? It actually would be safer to permit the shutoff valve at the manifold in a basement (which is commonly done) because the gas to the appliance can be shut off without having to move the appliance, which is commonly needed with cook-stoves and clothes dryers that are installed in tight spaces. This avoids the hazards associated with moving an appliance to access the shutoff valve behind it in order to repair a leaking appliance connector.

The proponent's claim that the cost of construction would not be increased is blatantly incorrect. The cost of construction would definitely increase due to the additional piping and shutoff valves required.

In summary, the configuration of a manifolded CSST system is commonly used in basements of houses and other buildings. It has worked well and without a true safety reason to prohibit this type of installation, this code change should be disapproved.

Here is a picture of a typical CSST manifold. Note the red shutoff valve that can serve all the branches. This does not preclude the installation of separate shutoff valves at each appliance where deemed necessary.

FG30-15

FG34-15

411.1, 411.4 (New)

Proposed Change as Submitted

Proponent : James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

411.1 Connecting appliances. Except as required by Section 411.1.1, *appliances* shall be connected to the *piping* system by one of the following:

1. Rigid metallic pipe and fittings.
2. Corrugated stainless steel tubing (CSST) where installed in accordance with the manufacturer's instructions.
3. Semirigid metallic tubing and metallic fittings. Lengths shall not exceed 6 feet (1829 mm) and shall be located entirely in the same room as the *appliance*. Semirigid metallic tubing shall not enter a motor-operated *appliance* through an unprotected knockout opening.
4. *Listed* and *labeled appliance* connectors in compliance with ANSI Z21.24 and installed in accordance with the manufacturer's instructions and located entirely in the same room as the *appliance*.
5. *Listed* and *labeled* quick-disconnect devices used in conjunction with *listed* and *labeled appliance* connectors.
6. *Listed* and *labeled* convenience outlets used in conjunction with *listed* and *labeled appliance* connectors.
7. Listed and *labeled* outdoor *appliance* connectors in compliance with ANSI Z21.75/CSA 6.27 and installed in accordance with the manufacturer's instructions.
8. Listed outdoor gas hose connectors in compliance with ANSI Z21.54 used to connect portable outdoor appliances. The gas hose connection shall be made only in the outdoor area where the appliance is used, and shall be to the gas *piping* supply at an appliance shutoff valve, a listed quick-disconnect device or listed gas convenience outlet.
9. Gas hose connectors for use in laboratories and educational facilities in accordance with Section 411.4

Add new text as follows:

411.4 Injection Bunsen-type burners Injection Bunsen-type burners used in laboratories and educational facilities shall be connected to the gas supply system by either a listed or unlisted hose.

Reason: The IFGC is currently silent on the use of unlisted connectors for injection burners commonly referred to as Bunsen burners. Unlisted hoses are the only readily available product for such installations and their use is common place. The new code requirement will allow the use of unlisted hoses approved by the AHJ. The revision is based on similar code requirement adopted into the 2015 National Fuel Gas Code, ANSI Z223.1/NFPA 54.

Cost Impact: Will not increase the cost of construction
Recongonizes a product that is already used.

FG34-15 : 411.1-RANFONE5075

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Approval was based on the proponent's published reason statement. Code officials have been requiring listed gas connectors instead of the historically used surgical tubing.

Assembly Motion: Disapprove
Online Vote Results: Successful
Support: 66.04% (70) Oppose: 33.96% (36)
Assembly Action : Disapproved

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action requests Disapprove.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Disapprove was successful by a vote of 66.04% (70) to 33.96% (36) by eligible members online during the period of May 14 - May 28, 2015.

FG34-15

FG35-15
411.2

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Fuel Gas Code

Revise as follows:

411.2 Manufactured home connections. The connection between the gas distribution piping system for a manufactured home and the gas service shall be located outside of the footprint of the home. Manufactured homes shall be connected to the distribution *piping* system by one of the following materials:

1. Metallic pipe in accordance with Section 403.4.
2. Metallic tubing in accordance with Section 403.5.
3. *Listed* and *labeled* connectors in compliance with ANSI Z21.75/CSA 6.27 and installed in accordance with the manufacturer's instructions.

Reason: Current Section 404.6 expresses the concern for gas piping entering a building at some point below grade. Likewise there is a concern for gas service piping running underground to a point underneath a manufactured home. Such homes will have skirting that creates what is, in effect, a crawl space. Any gas leakage from an underground lateral and riser pipe will collect under the home. If there is no underground riser and connection is made directly to a meter setting, the meter and service regulator should not be under the home. Also, having the gas service riser outside of the footprint of the home will help protect it from damage when a home is moved in or out.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

FG35-15 : 411.2-SNYDER3282

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There is no evidence of a problem with such connections under a manufactured home. Gas piping and connectors are allowed in crawl spaces. The term "gas service" could be confused with the utility service which is not

within the scope of the code.

Assembly Motion: **As Submitted**
Online Vote Results: **Failed**
Support: 40.57% (43) Oppose: 59.43% (63)
Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Fuel Gas Code

411.2 Manufactured home connections. ~~The connection between the~~ Underground gas ~~distribution piping system for a manufactured home and the gas service~~ supply risers shall not be located ~~outside of the footprint of the~~ under a manufactured home. Manufactured homes shall be connected to the distribution *piping* system by one of the following materials:

1. Metallic pipe in accordance with Section 403.4.
2. Metallic tubing in accordance with Section 403.5.
3. *Listed* and *labeled* connectors in compliance with ANSI Z21.75/CSA 6.27 and installed in accordance with the manufacturer's instructions.

Commenter's Reason: The committee thought that the words "gas service" could be confused with the utility owned equipment, so the text was revised to refer to underground gas supply risers, which are downstream of the meter setting. The purpose of the proposal is to prevent underground laterals and risers from being under a tralier where they are subject to damage while moving the trailer and where the piping could leak under the trailer. Current Section 404.6 prohibits piping from entering a building below grade and this proposal is a logical extension of that prohibition.

FG35-15

FG38-15
618.4

Proposed Change as Submitted

Proponent : Guy McMann, Jefferson County, Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Fuel Gas Code

Revise as follows:

618.4 Prohibited sources. Outdoor or return air for forcedair heating and cooling systems shall not be taken from the following locations:

1. Closer than 10 feet (3048 mm) from an *appliance* vent outlet, a vent opening from a plumbing drainage system or the discharge outlet of an exhaust fan, unless the outlet is 3 feet (914 mm) above the outside air inlet.
2. Where there is the presence of objectionable odors, fumes or flammable vapors; or where located less than 10 feet (3048 mm) above the surface of any abutting public way or driveway; or where located at grade level by a sidewalk, street, alley or driveway.
3. A hazardous or insanitary location or a refrigeration machinery room as defined in the *International Mechanical Code*.
4. A room or space, the volume of which is less than 25 percent of the entire volume served by such system.Where connected by a permanent opening having an area sized in accordance with Section 618.2, adjoining rooms or spaces shall be considered as a single room or space for the purpose of determining the volume of such rooms or spaces.

   Exception: The minimum volume requirement shall not apply where the amount of return air taken from a room or space is less than or equal to the amount of supply air delivered to such room or space.
5. A room or space containing an *appliance* where such a room or space serves as the sole source of return air.

   Exception: This shall not apply where:

   1. The *appliance* is a direct-vent *appliance* or an *appliance* not requiring a vent in accordance with Section 501.8.
   2. The room or space complies with the following requirements:

      2.1. The return air shall be taken from a room or space having a volume exceeding 1 cubic foot for each 10 Btu/h (9.6L/W) of combined input rating of all fuel-burning appliances therein.

      2.2. The volume of supply air discharged back into the same space shall be

approximately equal to the volume of return air taken from the space.

2.3. Return-air inlets shall not be located within 10 feet (3048 mm) of a draft hood in the same room or space or the combustion chamber of any atmospheric burner *appliance* in the same room or space.

3. Rooms or spaces containing solid fuel-burning appliances, provided that return-air inlets are located not less than 10 feet (3048 mm) from the firebox of such appliances.

6. A closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic.

Exceptions:

1. Where return air intakes are located not less than 10 feet (3048 mm) from cooking appliances and serve only the kitchen area, taking return air from a kitchen area shall not be prohibited.
2. Dedicated forced air systems serving only a garage shall not be prohibited from obtaining return air from the garage.

7. A crawl space by means of direct connection to the return side of a forced-air system. Transfer openings in the crawl space enclosure shall not be prohibited.
8. <u>Indoor swimming pool enclosures and associated deck areas except where such spaces are dehumidified.</u>

Reason: It's not desireable to pull return air from swimming pull areas due to the negitive affects it would have on the system from humidity to chemical odors associated with such places. A dedicated system would be required, a combination of supply and exhaust or the air should be dehumidified. This senerio is consistent with the same dwelling unit built under the IMC.

Cost Impact: Will not increase the cost of construction
No cost impact provided dehumidification isnt required.

FG38-15 : 618.4-MCMANN3560

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposed text would not allow a dedicated HVAC system for the pool area. No technical justification was offered for the prohibition. There is no evidense that humudity negatively affects appliances.

Assembly Motion: As Modified

Online Vote Results: Successful

Support: 60.19% (65) Oppose: 39.81% (43)

Assembly Action : Approved as Modified

Online Floor Modification:

Outdoor or return air for forcedair heating and cooling

systems shall not be taken from the following locations:

1. Closer than 10 feet (3048 mm) from an *appliance* vent outlet, a vent opening from a plumbing drainage system or the discharge outlet of an exhaust fan, unless the outlet is 3 feet (914 mm) above the outside air inlet.
2. Where there is the presence of objectionable odors, fumes or flammable vapors; or where located less than 10 feet (3048 mm) above the surface of any abutting public way or driveway; or where located at grade level by a sidewalk, street, alley or driveway.
3. A hazardous or insanitary location or a refrigeration machinery room as defined in the *International Mechanical Code*.
4. A room or space, the volume of which is less than 25 percent of the entire volume served by such system.Where connected by a permanent opening having an area sized in accordance with Section 618.2, adjoining rooms or spaces shall be considered as a single room or space for the purpose of determining the volume of such rooms or spaces.

   Exception: The minimum volume requirement shall not apply where the amount of return air taken from a room or space is less than or equal to the amount of supply air delivered to such room or space.
5. A room or space containing an *appliance* where such a room or space serves as the sole source of return air.

   Exception: This shall not apply where:

   1. The *appliance* is a direct-vent *appliance* or an *appliance* not requiring a vent in accordance with Section 501.8.
   2. The room or space complies with the following requirements:
      1. The return air shall be taken from a room or space having a volume exceeding 1 cubic foot for each 10 Btu/h (9.6L/W) of combined input rating of all fuel-burning appliances therein.
      2. The volume of supply air discharged back into the same space shall be approximately equal to the volume of return air taken from the space.
      3. Return-air inlets shall not be located within

10 feet (3048 mm) of a draft hood in the same room or space or the combustion chamber of any atmospheric burner *appliance* in the same room or space.

3. Rooms or spaces containing solid fuel-burning appliances, provided that return-air inlets are located not less than 10 feet (3048 mm) from the firebox of such appliances.

6. A closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic.

Exceptions:

1. Where return air intakes are located not less than 10 feet (3048 mm) from cooking appliances and serve only the kitchen area, taking return air from a kitchen area shall not be prohibited.
2. Dedicated forced air systems serving only a garage shall not be prohibited from obtaining return air from the garage.

7. A crawl space by means of direct connection to the return side of a forced-air system. Transfer openings in the crawl space enclosure shall not be prohibited.
8. Indoor swimming pool enclosures and associated deck areas except where the air from such spaces ~~are~~is dehumidified in accordance with Section 403.2.1 Item # 2 of the International Mechanical Code.

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action

requests Approve as Modified by Successful Assembly Action.

Outdoor or return air for forcedair heating and cooling systems shall not be taken from the following locations:

1. Closer than 10 feet (3048 mm) from an *appliance* vent outlet, a vent opening from a plumbing drainage system or the discharge outlet of an exhaust fan, unless the outlet is 3 feet (914 mm) above the outside air inlet.
2. Where there is the presence of objectionable odors, fumes or flammable vapors; or where located less than 10 feet (3048 mm) above the surface of any abutting public way or driveway; or where located at grade level by a sidewalk, street, alley or driveway.
3. A hazardous or insanitary location or a refrigeration machinery room as

defined in the *International Mechanical Code*.

4. A room or space, the volume of which is less than 25 percent of the entire volume served by such system.Where connected by a permanent opening having an area sized in accordance with Section 618.2, adjoining rooms or spaces shall be considered as a single room or space for the purpose of determining the volume of such rooms or spaces.

   Exception: The minimum volume requirement shall not apply where the amount of return air taken from a room or space is less than or equal to the amount of supply air delivered to such room or space.

5. A room or space containing an *appliance* where such a room or space serves as the sole source of return air.

   Exception: This shall not apply where:

   1. The *appliance* is a direct-vent *appliance* or an *appliance* not requiring a vent in accordance with Section 501.8.
   2. The room or space complies with the following requirements:
      1. The return air shall be taken from a room or space having a volume exceeding 1 cubic foot for each 10 Btu/h (9.6L/W) of combined input rating of all fuel-burning appliances therein.
      2. The volume of supply air discharged back into the same space shall be approximately equal to the volume of return air taken from the space.
      3. Return-air inlets shall not be located within 10 feet (3048 mm) of a draft hood in the same room or space or the combustion chamber of any atmospheric burner *appliance* in the same room or space.
   3. Rooms or spaces containing solid fuel-burning appliances, provided that return-air inlets are located not less than 10 feet (3048 mm) from the firebox of such appliances.

6. A closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic.

   Exceptions:

   1. Where return air intakes are located not less than 10 feet (3048 mm) from cooking appliances and serve only the kitchen area, taking return air from a kitchen area shall not be prohibited.
   2. Dedicated forced air systems serving only a garage shall not be prohibited from obtaining return air from the garage.

7. A crawl space by means of direct connection to the return side of a forced-air system. Transfer openings in the crawl space enclosure shall not be prohibited.
8. Indoor swimming pool enclosures and associated deck areas except where the air from such spaces ~~are~~is dehumidified in accordance with Section 403.2.1 Item # 2 of the International Mechanical Code.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Approve as Modified was successful by a vote of 60.19% (65) to 39.81% (43) by eligible members online during the period of May 14 - May 28, 2015.

Public Comment 2:

Proponent : Brent Ursenbach, representing Utah Chapter ICC

(bursenbach@slco.org) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Fuel Gas Code

618.4 Prohibited sources. Outdoor or return air for forcedair heating and cooling systems shall not be taken from the following locations:

1. Closer than 10 feet (3048 mm) from an *appliance* vent outlet, a vent opening from a plumbing drainage system or the discharge outlet of an exhaust fan, unless the outlet is 3 feet (914 mm) above the outside air inlet.
2. Where there is the presence of objectionable odors, fumes or flammable vapors; or where located less than 10 feet (3048 mm) above the surface of any abutting public way or driveway; or where located at grade level by a sidewalk, street, alley or driveway.
3. A hazardous or insanitary location or a refrigeration machinery room as defined in the *International Mechanical Code*.
4. A room or space, the volume of which is less than 25 percent of the entire volume served by such system.Where connected by a permanent opening having an area sized in accordance with Section 618.2, adjoining rooms or spaces shall be considered as a single room or space for the purpose of determining the volume of such rooms or spaces.

   Exception: The minimum volume requirement shall not apply where the amount of return air taken from a room or space is less than or equal to the amount of supply air delivered to such room or space.
5. A room or space containing an *appliance* where such a room or space serves as the sole source of return air.

   Exception: This shall not apply where:

   1. The *appliance* is a direct-vent *appliance* or an *appliance* not requiring a vent in accordance with Section 501.8.
   2. The room or space complies with the following requirements:

      2.1. The return air shall be taken from a room or space having a volume exceeding 1 cubic foot for each 10 Btu/h (9.6L/W) of combined input rating of all fuel-burning appliances therein.

      2.2. The volume of supply air discharged back into the same space shall be approximately equal to the volume of return air taken from the space.

      2.3. Return-air inlets shall not be located within 10 feet (3048 mm) of a draft hood in the same room or space or the combustion chamber of any atmospheric burner *appliance* in the same room or space.

3. Rooms or spaces containing solid fuel-burning appliances, provided that return-air inlets are located not less than 10 feet (3048 mm) from the firebox of such appliances.

6. A closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic.

Exceptions:

1. Where return air intakes are located not less than 10 feet (3048 mm) from cooking appliances and serve only the kitchen area, taking return air from a kitchen area shall not be prohibited.
2. Dedicated forced air systems serving only a garage shall not be prohibited from obtaining return air from the garage.

7. A crawl space by means of direct connection to the return side of a forced-air system. Transfer openings in the crawl space enclosure shall not be prohibited.

8. Indoor swimming pool enclosures and associated deck areas.

Exceptions:

1. Where the air from such spaces is dehumidified in accordance with Section 403.2.1 Item #2 of the International Mechanical Code.
2. Dedicated HVAC systems that serve only such spaces.

Commenter's Reason: The original proposal was modified at the Hearings, but disapproved by the committee; however, an Assembly Motion for As Modified was successful. This public comment includes the successful Assembly Motion relocating it into a new Exception 1. This Public Comment adds an additional Exception 2, allowing return air to be drawn from a pool enclosure if a dedicated system, similar to the exception for a garage in item 6 of this code section.

FG38-15

FG39-15
621.4

Proposed Change as Submitted

Proponent : Craig Conner, representing selff (craig.conner@mac.com)

2015 International Fuel Gas Code

Revise as follows:

621.4 Prohibited locations. Unvented room heaters shall not be installed within occupancies in Groups A, E and I. Unvented room heaters shall not be installed within new dwelling units. The location of unvented room heaters shall comply with Section 303.3.

Reason: Unvented heaters in the newer, more airtight homes present a serious health issue. The solution is simple. Use a vented heater.
New homes are much tighter due to the increased stringency in energy codes. Between the 2009 IECC and the 2015 IECC the required air tightness roughly doubled. As homes get rapidly tighter, air quality concerns grow.

Which codes and standards already prohibit unvented room heaters? The IFGC prohibits unvented heaters in occupancy groups A, E and I in Section 621.4. Minnesota and California prohibit them. Wisconsin prohibits them in houses built after 1980. Houston Texas, New York City, and many other cities prohibit unvented heaters. The ASHRAE ventilation standard excludes unvented heaters from its scope, presumably because the ASHRAE ventilation standards are not sufficient for unvented heaters (Section 3.2 , ASHRAE 62.2-2013). Furthermore, many large builders will not install unvented heaters, in part out of concern for liability.

In the last code cycle the IFGC committee disapproved a proposal similar to this. The ICC Report of the Hearing gave three reasons. Each reason is quoted below and responded to:
Committee- "The proposal would prohibit unvented heaters in older homes that have greater air infiltration."
Response- This proposal only applies to new dwelling units, units required to be much more airtight by the new energy code.
Committee- "The nitrogen dioxide levels discussed are more stringent than recommended by the CPSC."
Response- This reason statement notes both the Consumer Products Safety Commission (CPSC) nitrogen dioxide limits and the more recent US EPA National Ambient Air Quality Standards1 limit. Both standards were exceeded in the measurements cited in the paragraph below.
Committee- "No substantiation was given to demonstrate that the current restrictions for these appliances are inadequate. "
Response- The next two paragraphs cite a study of unvented heaters in actual use.

A study by the Building Research Council (BRC study) at the University of Illinois measured the air quality in 30 homes with unvented heaters2. In the short monitoring period (3 to 4 days) several combustion products exceeded health limits in some of the houses. Of greatest concern is the nitrogen dioxide level inside the home. About 40% of the homes exceeded the Consumer Product Safety Council's nitrogen dioxide limit of 0.300 ppm. About 80% of the homes exceeded the US EPA National Ambient Air Quality Standards of 0.100 ppm. The BRC study concluded excessive nitrogen dioxide was inherently associated with unvented heaters: "Levels of NO_2 that exceeded health-based guidelines occurred regardless of usage patterns, so should be considered inherent in the fireplace performance".

Unvented heaters operate like humidifiers, but without humidity controls. Combustion of methane, the main component of natural gas, produces one part carbon dioxide

and two parts water. Depending on the heater size and use duration the water produced could be a fraction of a cup (small heater, limited use) to more than a gallon (large heater, 4+ hours). The BRC study shows that some use unvented heaters for 4 hours or more.

ASHRAE's position pager on unvented heaters drew these conclusions from the BRC study: "This study found that 20% of homes exceeded the EPA and WHO threshold for an 8-hour average CO level of 9 ppm, primarily when they were used for continuous, extended periods of time. This usage pattern is contrary to industry recommendations, which state that unvented heaters should be used as supplemental heaters, not primary heaters or for excessive periods of time." As the ASHRAE position paper noted, the BRC study calls into question industry assumptions of only 2-hour usage periods in their safety studies. "Of the 30 homes, one used the fireplace as the sole source of heat for the home." And "... five were used continuously at least once for longer than 4 hours." The BRC study found longer period of use were associated with pollutant levels that exceeded health standards. Industry safety analysis usage assumptions need to be revised to include longer periods of use.

Yes, the unvented heaters have an "oxygen depletion sensor" (ODS). It is perhaps stating the obvious, but an oxygen sensor monitors oxygen, but not nitrogen dioxide or carbon monoxide. This sensor does not protect against other pollutants, such as the nitrogen dioxide and carbon monoxide levels the BRC study measured as exceeding the CSPC and EPA standards1 in real homes.

In conclusion, the Consumer Product Safety Commission3 suggests removing air quality issues at the source: "Usually the most effective way to improve indoor air quality is to eliminate individual sources of pollution or to reduce their emissions." The CPSC recommends unvented heater users reduce the exposure to unvented heater combustion products in homes with unvented heaters- "While a space heater is in use, open a door from the room where the heater is located to the rest of the house and open a window slightly." This would seem antithetical to good energy efficiency practice. Building codes cannot and should not require doors or windows to be open to let in extra air to address health concerns.

Using a vented heater in a new, airtight home is a simple solution.

References:
1. US. EPA National Ambient Air Quality Standards (NAAQS) http://www.epa.gov/air/criteria.html
2. "Measured concentrations of combustion gases from the use of unvented gas fireplaces". Francisco, P. W., Gordon, J. R. and Rose, B. (2010), Indoor Air, volume 20: pages 370-378.
3. "The Inside Story: A Guide to Indoor Air Quality" http://www.cpsc.gov/en/safety-education/safety-guides/home/the-inside-story-a-guide-to-indoor-air-quality/

Bibliography: "Measured concentratoins of combustion gases from the use of unvented gas fireplaces". P. W. Francisco, J. R. Gordon, B. Rose. 2010. Indoor Air journal. Volume 20. Pages 370-379.

Cost Impact: Will increase the cost of construction
Vented heaters require a vent and are more limited in the practical locations where they can be placed. Vented heaters cost more to purchase.
Using these devices as heaters, as is sometimes recommended by the "vent-free" industry, is not an acceptable trade of health/safety for $$ savings.

FG39-15 : 621.4-CONNER5303

Public Hearing Results

Committee Action: Disapproved

Committee Reason: No technical justification was offered. The Z21/83 standards have no issues with these appliances. The added moisture is benefical humidification.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Craig Conner, representing self (craig.conner@mac.com) requests Approve as Submitted.

Commenter's Reason: Unvented heaters exhaust all combustion products, including pollutants, into the indoor air. These pollutants, such as nitrogen dioxide that is the focus of this reason statement, can accumulate to unsafe levels. These levels can exceed the EPA's air quality standards.

EPA identifies nitrogen dioxide as one of "six principal pollutants". (1) The levels of nitrogen dioxide allowed in unvented heater exhaust by the unvented heater "safety standard" greatly exceed EPA's air quality standard (details below). The pollutant levels allowed in heater exhaust can rapidly raise the pollutant levels in minimum sized rooms to well above the EPA air quality standards. The IMC, IFGC and IRC require most heating devices to be vented to the outside. Likewise, the unvented heater problem is not hard to fix. Just use the vented version of these heaters in new dwellings.

In this code cycle, there was a proposal to add unvented alcohol-burning devices to the IMC (M106-15). The unvented alcohol burning device safety standard has the same nitrogen dioxide limit for its flue gases. (2) The IMC committee disapproved M106-15, stating "*The allowable NOx emissions are above the EPA limits for such.*" (3) So the IMC committee rejected a "safety standard" for exhaust combustion products that exceeded the EPA air quality standard. Consistency is needed here for indoor air quality and enforcement.

How much does the unvented heater "safety standard" allow exhaust to exceed the Environmental Protection Agency's (EPA's) National Ambient Air Quality Standards? (4) A lot. The gas unvented heater safety standard is ANSI Z21-11.2. It limits nitrogen dioxide in unvented heater flue gases to 20,000 ppb (parts per billion). (5) EPA's "primary" air quality standard for nitrogen dioxide is 100 ppb. (6) Therefore, the exhaust flue gas pollutants, which vent directly into the room air, can be 200 TIMES that of EPA's air quality standard.

One measure of chemical toxicity is the IDLH level (Immediately Dangerous to Life and Health). The National Institute for Occupational Safety and Health's value for IDLH for nitrogen dioxide is the same level the "safety standard" allows unvented heaters to exhaust. (7) Unvented heaters rely on diluting their exhaust pollutants in indoor air, the same air the occupants breath. Using indoor air to dilute pollutant levels is a very poor way to manage pollutants.

How does the flue gas exhaust volume from one hour of unvented heater use

compare to the volume of the code-required minimum-size room? The IFGC and IRC specify a minimum of 1 cf of room for each 20 btu/hr of unvented heater. (8) This means bigger rooms for bigger heaters, and conversely smaller rooms for smaller heaters. But the flue gas volume from one hour of use is about 16.5% of the minimum room volume. (9) If these gases from one hour of use stayed in the room, would they exceed the EPA air quality standard? Yes, and would be more than 33 TIMES the EPA air quality standard in that one hour. (10)

Opponents of this change might counter with "Wouldn't some nitrogen dioxide leave the room or be dissipated?". Yes, some nitrogen dioxide reacts with surfaces of the room, moves into other rooms or is indirectly exhausted outside after being vented into the indoor air. Some lump these nitrogen dioxide reductions together into a "decay rate". The decay rate might cut the nitrogen dioxide by half, which still puts the code-minimum room above the EPA's air quality standard. (11) In the second hour of unvented heater use the room starts with the nitrogen dioxide from the previous hour (a level already above the EPA standard). And it just keeps getting worse because pollutant levels build.

What are the health effects of increased nitrogen dioxide? According to the American Lung Association (12): inflamed airways, cough and wheezing, reduced lung function, increased asthma attacks, more emergency room and hospital admissions, increased respiratory infection, such as influenza. The ALA notes unvented heaters as one source for nitrogen dioxide.

Some homes have nitrogen dioxide from other sources. Homes with gas stoves or ovens usually start with low, but safe, levels of nitrogen dioxide. Homes near busy roads, freeways or airports tend to start with higher levels. Large urban areas tend to be worse; for example Chicago, Detroit, Atlanta, Los Angles, and the northeast corridor are worse. (12) Unvented heaters in those homes with other sources of nitrogen dioxide will more quickly exceed safe levels of nitrogen dioxide.

Proponents of this change may ask if the unvented heater safety device, the Oxygen Depletion Sensor (ODS), would also protect against high levels of nitrogen dioxide. The answer is no. As the name suggests, the ODS responds to oxygen levels, not nitrogen dioxide levels. The nitrogen dioxide limit is exceeded long before the ODS stops the heater for a low oxygen level.

Why focus on new dwelling units? People spend a great deal of time in their homes, and new homes are the tightest.

Unvented heaters pollute the living space. The code should require vented heaters in the living space.

Notes:

(1) From the EPA web site:

"*The Clean Air Act … requires EPA to set National Ambient Air Quality Standards … for pollutants considered harmful to public health and the environment.*" "*EPA has set National Ambient Air Quality Standards for six principal pollutants…*"http://www.epa.gov/air/criteria.html

(2) Section 13.10 of UL 1370 limits nitrogen dioxide in the exhaust (called "air free sample") to the same limits as the gas unvented heaters, "0.002 %" or 20000 ppb.

(3) 2015 Report of the Committee Action Hearings on M106-15, page 160 http://www.iccsafe.org/wp-content/uploads/2015-ReportCAHResults.pdf

(4) National Ambient Air Quality Standards http://www.epa.gov/air/criteria.html

(5) IFGC requires ANSI Z21-11.2, titled *Gas-fired Room Heaters-Volume II-Unvented*

Room Heaters, for unvented heaters. ANSI Z21-11.2-2013 Section 5.4.4 gives "*0.002%*" as the limit for nitrogen dioxide in unvented heater flue gases (exhaust). In ppb, the units of the EPA air quality standard, this is 20000 ppb.

(6) From the EPA website:

The 100 ppb is a "*primary standard*" intended to "*provide public health protection, including protecting the health of 'sensitive' populations such as asthmatics, children, and the elderly*". http://www.epa.gov/air/criteria.html

The unvented heater manufacturers would prefer to use an older standard for air quality from EPA's Consumer Product Safety Commission (CPSC), which set at 300 ppb limit; however the unvented heater flue gas exhaust "*safety standard*" greatly exceeds even the older CPSC standard.

(7) National Institute for Occupational Safety and Health guide to chemical hazards for nitrogen dioxide. http://www.cdc.gov/niosh/npg/npgd0454.html

(8) The IFGC/IRC minimum size room is in IFGC Sections 621.5 and 501.8; also in IRC Section G2425.8.

(9) The calculation of exhaust volume compared to room volume:

Natural gas has 1028 btu/cf. http://www.eia.gov/tools/faqs/faq.cfm?id=45&t=8

Each cf of natural gas vents 8.5 cf of air http://www.engineeringtoolbox.com/fuels-air-flue-gas-d_170.html (Air is only 21% oxygen, other gases are not part of combustion, but are vented also.)

20 Btu / cf of room volume is the code minimum room

20 Btu / (1028 Btu/cf) * 8.5 = 0.165 or 16.5%

or 16.5% of room volume is exhausted per hour of heater use.

(10) Exhaust is 200 times EPA air quality standard. It fills 16.5% of the volume.

200 x 0.165 = 33 times EPA air quality standard for exhaust mixed into room.

(11) It's complicated. Decay rates vary a lot. I assumed about 1 as an "industry friendly" decay rate. The industry has used similar values, for example values from 0.78 to 1.33 (in Table 2) in *The Impact of Unvented Gas Heating Appliances on Indoor Nitrogen Dioxide Levels in 'Tight' Homes*

http://www.ahrinet.org/App_Content/ahri/files/Product%20Section/Vent-Free%20NO2%20Modeling%20Study%20Final%20Summary%20March%2021%202013.pdf

Pollution is worse in rooms that are not directly supplied with air or vented to the outside.

(12) From the American Lung Association:

http://www.lung.org/healthy-air/outdoor/resources/nitrogen-dioxide.html

Public Comment 2:

Proponent : Don Denton, Consulting Engineer to the Vent-Free Gas Products Alliance, representing Consulting Engineer to the Vent-Free Gas Products Alliance (ventfree@comcast.net) requests Disapprove.

Commenter's Reason: I agree with the Committee's unanimous disapproval of FG 39.
The proponent alleges that there are increased indoor air quality concerns when unvented gas heaters are installed in unusually tight homes.

Energy efficient homes built more tightly require less heat. Vent-free heaters operate for shorter time periods and have less impact on indoor air quality. This fact has been documented in many research projects over the past 20 years, including those performed by Gas Research Institute (GRI), American Gas Association

Research, Risksciences, Toxcel, and Wilson Environmental.

Moreover, unvented gas heating products meet nationally recognized indoor air quality guidelines for all types of house construction--energy efficient or not--throughout every heating region in the United States. ASHRAE has studied unvented gas fireplaces for 15 years, and it has not proposed any special ventilation requirements, including homes with tight construction.

The CPSC has recognized this industry for its remarkable safety record. CSA, the ANSI Secretariat, has opined that "vent-free (unvented) gas heaters are arguably the safest gas products on the market." All products are certified by an independent certification agency to a national product standard, ANSI Z21.11.2, for safety, performance, and construction. About 23 million units have been used in the last 34 years with a proven safety record.

Similar proposals have been rejected through many code revision cycles, and usually by a unanimous decision. No code permitting unvented gas heaters has ever reversed its decision in the almost twenty years of the ICC's existence.

Consumers should be able to continue using unvented gas heaters as a matter of choice--just as they have done for decades.

Bibliography: The Effect of Properly Sized and Operated Vent-Free Gas Products on Indoor Air Quality (IAQ); American Gas Association Research; Douglas DeWerth, Robert A. Borgeson, and Dr. Michael A. Aronov; 1995
Development of Sizing Guidelines for Vent-Free Supplemental Heating Products; Gas Research Institute; 1996

Assessment of the Potential Impacts of Vent-Free Gas Products on Indoor Relative Humidity; Risksciences; Gary K. Whitmyre and Dr. Muhilan Pandian; 2002

The Impact of Unvented Gas Heating Appliances on Indoor Nitrogen Dioxide Levels in "Tight" Homes; Gary K. Whitmyre; 2009

Vent-Free Hearth Products Evaluation; Wilson Environmental Associates; A. L. Wilson; 1999

FG39-15

P2-15
202 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Add new definition as follows:

SECTION 202 DEFINITIONS

CLEAR-WATER WASTE. A water discharge from equipment that is translucent and devoid of solids.

Reason: There are frequent arguments within the plumbing industry about what constitutes clear-water waste. Some believe that such waste water must be as clear as potable water while others believe that is much too severe of definition. The existing code sections that use the term clear-water waste are provided below. From the context of where the term is used in the code, it should be obvious that clear-water might not necessarily be transparent (like looking through window glass) but on the other hand, the water might be a little murky because of suspended solids. In other words, translucent. The intent of including "devoid of solids" is to identify applications where large particles floated along by the water will immediately drop out of the water. How big of solids are of concern? The allowance in Section 802.3 for not having to provide a strainer for clear-water wastes give a hint about the solids size that doesn't seem to be an issue.

Sections in the IPC that use the term "clear water waste:

> **709.4.1 Clear-water waste receptors.** Where waste receptors such as floor drains, floor sinks and hub drains receive only clear-water waste from display cases, refrigerated display cases, ice bins, coolers and freezers, such receptors shall have a drainage fixture unit value of one-half.
>
> **801.1 Scope.** This chapter shall govern matters concerning indirect waste piping and special wastes. This chapter shall further control matters concerning food-handling establishments, sterilizers, clear-water wastes, swimming pools, methods of providing air breaks or air gaps, and neutralizing devices for corrosive wastes.
>
> **802.1.3 Potable clear-water waste.** Where devices and equipment, such as sterilizers and relief valves, discharge potable water to the building drainage system, the discharge shall be through an indirect waste pipe by means of an air gap.
>
> **802.1.5 Nonpotable clear-water waste.** Where devices and equipment such as process tanks, filters, drips and boilers discharge nonpotable water to the building drainage system, the discharge shall be through an indirect waste pipe by means of an air break or an air gap.
>
> **802.2 Installation.** Indirect waste piping shall discharge through an air gap or air break into a waste receptor. Waste receptors shall be trapped and vented and shall connect to the building drainage system. All indirect waste piping that exceeds 30 inches (762 mm) in developed length measured horizontally, or 54 inches (1372 mm) in total developed length, shall be trapped.
>
> > **Exception:** Where a waste receptor receives only clear-water waste and does not directly connect to a sanitary drainage system, the receptor shall

not require a trap.

802.3 Waste receptors. For other than hub drains that receive only clear-water waste and standpipes, a removable strainer or basket shall cover the waste outlet of waste receptors. Waste receptors shall not be installed in concealed spaces. Waste receptors shall not be installed in plenums, crawl spaces, attics, interstitial spaces above ceilings and below floors. Ready access shall be provided to waste receptors.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 19.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P2-15 : 202-CLEAR-WATER WASTE (New)-SNYDER3909

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Waste and soil are already clear in the code. There doesn't need to be another definition for waste.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: The term CLEAR WATER WASTE is used six times in the IPC and needs a definition to clarify what is intended by the code.

P2-15

P7-15
202

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Delete without substitution:

~~SECTION 202 DEFINITIONS~~

~~**SWIMMING POOL**. Any structure, basin, chamber or tank containing an artificial body of water for swimming, diving or recreational bathing having a depth of 2 feet (610 mm) or more at any point.~~

Reason: There is no need for such a specific definition for a swimming pool within the context of how the term is used in the few places in the IPC. Water from a swimming pool is handled in the same manner no matter how a swimming pool is actually defined. And this definition conflicts with the definition of a swimming pool according to the International Swimming Pool and Spa Code.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 85.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P7-15 : 202-SWIMMING POOL-SNYDER3914

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The IPC needs a definition for a pool. Perhaps the IPSPSC definition should be used instead of the current definition.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

SECTION 202 DEFINITIONS

SWIMMING POOL A permanent or temporary structure that is intended to be used for swimming, bathing or wading and that is designed and manufactured or built to be connected to a circulation system. A swimming pool can be open to the public regardless of whether a fee is charged for its use or can be accessory to a residential setting where the pool is available only to the household and guests of the household.

Commenter's Reason: The Committee recommended that the IPC retain a definition for SWIMMING POOL and suggested that the definition in the ISPSC be used instead of the current definition. The ISPSC does not have a definition for SWIMMING POOL but does have the following definitions:

> **PUBLIC SWIMMING POOL (Public Pool).** A pool, other than a residential pool, that is intended to the used for swimming or bathing and is operated by an owner, lessee, operator, licensee or concessionaire, reagrdless of whether a fee is charged for use.
>
> **RESIDENTIAL SWIMMING POOL (Residential Pool).** A pool intended for use which is accessory to a residential setting and available only to the household and its guests.

These ISPSC definitions are not very informative with respect to how the term SWIMMING POOL is used in the IPC (***swimming pool* is** italicized and bolded in the following only for the purposes of this public comment statement):

> **423.1 Water connections.**Baptisteries, ornamental and lily pools, aquariums, ornamental fountain basins, ***swimming pools***, and similar constructions, where provided with water supplies, shall be protected against backflow in accordance with Section 608.
>
> **612.1 Solar systems.**The construction, installation, alterations and repair of systems, equipment and appliances intended to utilize solar energy for space heating or cooling, domestic hot water heating, ***swimming pool*** heating or process heating shall be in accordance with the *International Mechanical Code*.
> **801.1 Scope.** This chapter shall govern matters concerning indirect waste piping and special wastes. This chapter shall further control matters concerning food-handling establishments, sterilizers, clear-water wastes, ***swimming pools***, methods of providing air breaks or air gaps, and neutralizing devices for corrosive wastes.
>
> **802.1.4 Swimming pools.** Where waste water from ***swimming pools***, backwash from filters and water from pool deck drains discharge to the building drainage system, the discharge shall be through an indirect waste pipe by means of an *air gap*.
>
> **1302.2 Sources.** Onsite nonpotable water reuse systems shall collect waste discharge from only the following sources: bathtubs, showers, lavatories, clothes washers, and laundry trays. Water from other approved nonpotable sources including ***swimming pool*** backwash operations, air conditioner condensate, rainwater, cooling tower blow-down water, foundation drain water, steam system condensate, fluid cooler discharge water, food steamer discharge water, combination oven discharge water, industrial process water, and fire pump test water shall also be permitted to be collected for reuse by onsite nonpotable water reuse systems, as approved by the code official and as appropriate for the intended application.

The Scope of the ISPSC (Section 101.2) offers additional information about pools that can add clarity for a more meaningful SWIMMING POOL definition:

> **101.2 Scope.**The provisions of this code shall apply to the construction, alteration, movement, renovation, replacement, repair and maintenance of aquatic recreation facilities, pools and spas. The pools and spas covered by this code are either permanent or temporary, and shall be only those that are designed and manufactured to be connected to a circulation system and that are intended for swimming, bathing or wading.

The proposed new IPC definition for SWIMMING POOL proposed in this Public Comment is derived from the ISPSC Scope section and the Public and Residential pool definitions. This definition is the best that the PMGCAC can do to comply with Committee's recommendation to replace the current definiton with the "ISPSC definition" of ***swimming pool***.

Note however, having this ISPSC-based definition might not add any clarity or insight into the meaning of the IPC sections using the defined term. This raises the question as to whether a definition for swimming pool is needed at all to clarify enforcement of the sections in the IPC. Does the new definition somehow *limit* the extent of coverage that the code sections are intended to cover?

If the voters want the proposed definition, then the PMGCAC does not see any immediate concerns with using the proposed definition.

However, if the voters do not want the proposed definition, the PMGCAC strongly recommends that a motion be made for As Submitted for removal of the current definition. The current definition is not appropriate nor is it in alignment with how the ISPSC covers pools, especially wading pools. ISPSC Section 405.4 limits wading pool depth to a maximum depth of 18 inches. The current IPC definition for ***swimming pool***would prevent wading pools from being witin the scope of the IPC sections that use the term *swimming pool*. The PMGCAC believes that is not the intent of the IPC sections. The IPC would be better off without a definition as opposed to an improper and a limiting definition.

P7-15

P9-15
303.5 (New)

Proposed Change as Submitted

Proponent : Bill LeVan, Cast iron Soil Pipe Institute, representing Cast Iron Soil Pipe Institute (blevan@mindspring.com)

2015 International Plumbing Code

Add new text as follows:

303.5 Cast iron soil pipe, fittings and components Cast iron soil pipes and fittings, and the couplings used to join these products together, shall be third party listed and labeled. Third party certifiers or inspectors shall comply wih the minimum inspection requirements of Annex A or Annex A1 of the ASTM and CISPI product standards indicated in the code for such products.

Reason: Third Party inspections of manufacturers of cast iron soil pipes and fittings and the couplings used to join theses products together are required however not all third party inspectors are familair with these essential items which must be inspected to asure complaince. The ASTM and CISPI standards were modified adding the minimum requirements which are reasonable and to minimize manufacturing defects. The ASTM and CISPI committees worked closely wih third party certifiers to develop these inspection schemes.

Cost Impact: Will not increase the cost of construction
Improved inspection prodcedures at the manufacturing locations will reduce the amount of defects on jobsites before the instalaltion is begun and reduce the amount of time needed for instalaltion.

P9-15 : 303.5 (New)-LEVAN4523

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: There needs to be emphasis on ensuring quality of the these pipe materials. The Annex in the ASTM standards provides additional requirements to ensure a quality product.

Assembly Motion: Disapprove
Online Vote Results: Successful
Support: 58.97% (92) Oppose: 41.03% (64)
Assembly Action : Disapproved

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action requests Disapprove.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Disapprove was successful by a vote of 58.97% (92) to 41.03% (64) by eligible members online during the period of May 14 - May 28, 2015.

P9-15

P15-15 Part II

P2605.2 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

NOTE: PART I DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART I IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART II.

2015 International Residential Code

Add new text as follows:

P2605.2 Thermal expansion tanks. A thermal expansion tank shall not be supported by the piping that connects to the thermal expansion tank.

Reason: Too often, inspectors see thermal expansion tanks hanging on the piping that the tank connects to. Even the smallest size of tank could weigh up to 16 pounds when full of water. where these tanks are installed at the end of a horizontal rigid pipe from the side outlet of a tee, there is significant moment being applied to the piping. Larger tanks or longer pipes result in bigger moments. And perhaps a significant "moment" when the pipe cracks or breaks off. Although the this proposed section started off trying to identify where it was OK to support the tank from the piping, the realization was made that it would be easiest to just not have the piping support the tank. Strap the tank to the building structure or the water heater tank, or place the tank on top of the water heater where it will not be disturbed (and hopefully not exposed to heat from a nearby flue of a gas water heater.)
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 36.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P15-15 Part II : P2605.2 (New)-SNYDER5918

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: The language seems to not require the tank to be supported at all. This is a good idea that needs some language rework for a public comment.

Assembly Motion: As Submitted

Online Vote Results: **Failed**
Support: 48.75% (78) Oppose: 51.25% (82)
Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

P2605.2 Thermal expansion tanks. A thermal expansion tank shall be supported in accordance with the manufacturer's instructions. Thermal expansion tanks shall not be supported by the piping that connects to ~~the thermal expansion~~ such tank.

Commenter's Reason: Part I of this proposal was modified by the IPC and for coordination between the plumbing codes, the requirement should be the same.

P15-15 Part II

NOTE: PART I DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

P15-15 Part I

308.10 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Add new text as follows:

308.10 Thermal expansion tanks. A thermal expansion tank shall be supported according to the manufacturer's instructions. Tanks shall not be supported by the piping that connects to the thermal expansion tank.

Reason: Too often, inspectors see thermal expansion tanks hanging on the piping that the tank connects to. Even the smallest size of tank could weigh up to 16 pounds when full of water. where these tanks are installed at the end of a horizontal rigid pipe from the side outlet of a tee, there is significant moment being applied to the piping. Larger tanks or longer pipes result in bigger moments. And perhaps a significant "moment" when the pipe cracks or breaks off. Although the this proposed section started off trying to identify where it was OK to support the tank from the piping, the realization was made that it would be easiest to just not have the piping support the tank. Strap the tank to the building structure or the water heater tank, or place the tank on top of the water heater where it will not be disturbed (and hopefully not exposed to heat from a nearby flue of a gas water heater.)
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 36.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P15-15 Part I : 308.10 (New)-SNYDER5917

Public Hearing Results

Part I

Committee Action: Approved as Modified

Modification:

308.10 Thermal expansion tanks. A thermal expansion tank shall be

supported according to the manufacturer's instructions. Tanks shall not be supported by the piping that connects to the thermal expansion tank.

Committee Reason:

For the Modification only:

Some thermal expansion tank manufacturer's instructions do have installation instructions and even though the code requires, in general, the following of installation instructions, this is a good reminder for these components.

For the proposal As Modified:

Some thermal expansion tank manufacturer's instructions do not state anything about support of the tank. As a minimum, piping should not be used to support these tanks.

Assembly Action : None

P17-15

Table 308.5

Proposed Change as Submitted

Proponent : Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Revise as follows:

TABLE 308.5
HANGER SPACING

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
~~Brass pipe~~	~~10~~	~~10~~
Copper or copper-alloy pipe and tubing	~~12~~ 8	10
~~Copper or copper-alloy tubing, $1\frac{1}{4}$-inch diameter and smaller~~	~~6~~	~~10~~
~~Copper or copper-alloy tubing, $1\frac{1}{2}$-inch diameter and larger~~	~~10~~	~~10~~

(Portions of table not shown remain unchanged)

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. The maximum horizontal spacing of cast-iron pipe hangers shall be increased to 10 feet where 10-foot lengths of pipe are installed.

b. For sizes 2 inches and smaller, a guide shall be installed midway between required vertical supports. Such guides shall prevent pipe movement in a direction perpendicular to the axis of the pipe

Reason: Brass is a copper alloy and the supporting requirements are covered under the Copper and Copper Alloy Pipe and Tubing line. The 6 foot requirement is to restrictive. The Copper Tubing Handbook written by Copper Development Association recommends horizontal support every 8 feet.

Cost Impact: Will not increase the cost of construction
This proposal wil not increase the cost of construction as this is only a clarification in the name of a product

P17-15 : T308.5-FEEHAN3788

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Many people are not going to understand what copper alloy is especlally when the standards for the materials still having a title that includes the term "brass". Woulod like to see a public comment that retains two seperate rows, one for copper alloy pipe at 10 foot horizontal spacing and one for copper alloy tubing at 8 foot horizontal spacing.

Assembly Action :

None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Pennie L Feehan, representing Copper Development Association requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Plumbing Code

TABLE 308.5
HANGER SPACING

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
Copper or copper-alloy pipe ~~and tubing~~.	~~8~~12	10
Copper or copper-alloy tubing	8	10

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. The maximum horizontal spacing of cast-iron pipe hangers shall be increased to 10 feet where 10-foot lengths of pipe are installed.

b. For sizes 2 inches and smaller, a guide shall be installed midway between required vertical supports. Such guides shall prevent pipe movement in a direction perpendicular to the axis of the pipe

Commenter's Reason: The original proposal combined pipe and tubing into one category and increased the strapping requirement. Brass and copper-alloy are the same materials and there is a conflict in the table. This public comment removes the term brass without changing the strapping requirements for copper and copper alloys pipe and tubing and eliminates the conflict the table.

P17-15

P20-15 Part I

312.1

Proposed Change as Submitted

Proponent : Michael Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservices.com)

2015 International Plumbing Code

Revise as follows:

312.1 Required tests. The permit holder shall make the applicable tests prescribed in Sections 312.2 through 312.10 to determine compliance with the provisions of this code. The permit holder shall give reasonable advance notice to the code official when the plumbing work is ready for tests. The equipment, material, power and labor necessary for the inspection and test shall be furnished by the permit holder and he or she shall be responsible for determining that the work will withstand the test pressure prescribed in the following tests. All plumbing system piping shall be tested with either water or, for piping systems other than plastic, by air. After the plumbing fixtures have been set and their traps filled with water, the entire drainage system shall be submitted to final tests. The code official shall require the removal of any cleanouts if necessary to ascertain whether the pressure has reached all parts of the system.

> **Exception:** For plastic piping systems, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by all of the manufacturer's instructions for the plastic pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws, or regulations outside of this code.

P20-15 Part I : 312.1-CUDAHY5894

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: This exception needs to be more specific about what piping this applies to. Is this only intended for DWV piping?

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Michael Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservices.com) requests Approve

as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

312.1 Required tests. The permit holder shall make the applicable tests prescribed in Sections 312.2 through 312.10 to determine compliance with the provisions of this code. The permit holder shall give reasonable advance notice to the code official when the plumbing work is ready for tests. The equipment, material, power and labor necessary for the inspection and test shall be furnished by the permit holder and he or she shall be responsible for determining that the work will withstand the test pressure prescribed in the following tests. All plumbing system piping shall be tested with either water or, for piping systems other than plastic, by air. After the plumbing fixtures have been set and their traps filled with water, the entire drainage system shall be submitted to final tests. The code official shall require the removal of any cleanouts if necessary to ascertain whether the pressure has reached all parts of the system.

> **Exception:** For plastic piping systems intended for pressure service, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by all of the manufacturer's instructions for the plastic pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws, or regulations outside of this code.

Commenter's Reason: We stand by our original submittal with a slight modification to limit it to pressure piping systems. There was concern from the committee that this could be applied to DWV systems.

Public Comment 2:

Proponent : Mary Kimlinger, representing Uponor (mary.kimlinger@uponor.com); Gary Morgan, Viega LLC, representing Viega LLC (gary.morgan@viega.us) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

312.1 Required tests. The permit holder shall make the applicable tests prescribed in Sections 312.2 through 312.10 to determine compliance with the provisions of this code. The permit holder shall give reasonable advance notice to the code official when the plumbing work is ready for tests. The equipment, material, power and labor necessary for the inspection and test shall be furnished by the permit holder and he or she shall be responsible for determining that the work will withstand the test pressure prescribed in the following tests. All plumbing system piping shall be tested with either water or, for piping systems other than plastic, by air. After the plumbing fixtures have been set and their traps filled with water, the entire drainage system shall be submitted to final tests. The code official shall require the removal of any cleanouts if necessary to ascertain whether the pressure has reached all parts of the system.

Exception: For ~~plastic~~ PEX piping systems, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by all of the manufacturer's instructions for the plastic pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws, or regulations outside of this code.

Commenter's Reason:
[**KIMLINGER**]: During the CAH the commitee voted to disapprove the original change proposal because the term "plastic piping" was too vague to clearly define which piping materials should be allowed to be tested with air. This public comment addresses that concern by changing "plastic" to "PEX". This same change was made via a floor modification during the CAH for the IRC-M (Item #RM45-15) and was approved by that committee. Piping such as PEX will not shatter under pressure and poses no greater risk in an air pressure test than a metallic piping material. In addition, there are certain situations that make testing with water not feasible, such as below freezing temperatures and limited water access during install.

[**MORGAN**]: The intent of this proposal was to simply update the codes to allow for air testing of certain types of non-rigid plastic piping systems which are as safe to test with air as with metallic plumbing systems such as copper. The original proposal was lacking in that rather than specifically state the type of plastic pipe which can be safely tested, the proposal was "vague" and lacking definition that the technical committee was seeking and as a result this proposal was disapproved by the technical committee.

The same exact proposals (M150 & RM45) were made both in the residential mechanical and mechanical codes (which were heard after the plumbing codes) and with only one simple floor modification, both proposals passed unanimously by their respective technical committees.

It is commonly known and understood that PEX, like other polyolefin materials, will NEVER burst in a brittle way and will NEVER shatter unlike the rigid plastic pipes such as CPVC and PVC. If PEX fails during pressure testing it is ALWAYS in a ductile way where no parts of the pipe break into pieces. Therefore the simple addition of "PEX" used in place of "plastic" in the proposed exception statement will make it abundantly clear that PEX can be air tested safely.

This proposed modification simply applies the same exact language to the proposal as done for M150 and RM45.

The opponents of the original proposal spoke of catastrophic failures of plastic pipe where the pipe shattered and caused bodily harm but these same opponents readily admitted that these failures were all those of rigid plastic piping and NOT that of PEX tubing. I urge the voting members to end this unnecessary and long standing prohibition of air testing PEX piping systems which is absolutely no more hazardous to air test than metallic piping systems such as copper.

We urge acceptance of the original proposal as modified.

P20-15 Part I

P20-15 Part II

P2503.7

Proposed Change as Submitted

Proponent : Michael Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservices.com)

2015 International Residential Code

Revise as follows:

P2503.7 Water-supply system testing. Upon completion of the water-supply system or a section of it, the system or portion completed shall be tested and proved tight under a water pressure of not less than the working pressure of the system or, for piping systems other than plastic, by an air test of not less than 50 psi (345 kPa). This pressure shall be held for not less than 15 minutes. The water used for tests shall be obtained from a potable water source.

> **Exception:** For plastic piping systems, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by all of the manufacturer's instructions for the plastic pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws, or regulations outside of this code.

Reason: PPFA has a new air testing policy, which allows for some limited air testing of plastic piping systems, if a number of conditions are met.

Bibliography: PLASTIC PIPE AND FITTINGS ASSOCIATION POLICY ON TESTING PLASTIC PIPE AND FITTINGS INSTALLATIONS WITH COMPRESSED GAS, PPFA, 2014, http://www.ppfahome.org/ub4.aspx

Compressed air or any other compressed gases should not be used for pressure testing plastic plumbing systems.

EXCEPTIONS:

1.) With trap seal pull testing, where a completed DWV system is vacuum tested with all of its traps filled with water, and the trap seals are tested with a vacuum typically between one and two inches of water column.

2.) For plastic piping systems specifically designed for use with compressed air or gasses;

• Manufacturers' instructions must be strictly followed for installation, visual inspection, testing and use of the systems,

(and)

• Compressed air or other gas testing is not prohibited by the authority having jurisdiction (AHJ).

3.) When compressed air or other gas pressure testing is specifically authorized by the applicable written instructions of the manufacturers of all plastic pipe and plastic pipe fittings products installed at the time the system is being tested and compressed air or other gas testing is not prohibited by the authority having jurisdiction (AHJ).

The manufacturer should be contacted if there is any doubt as to how a specific

system should be tested.

Cost Impact: Will not increase the cost of construction
This proposal simply adds another option for air testing some specific piping materials into the code and as such, the option is not requiring that this method be chosen. Thus the code with this proposal added will not cause the cost of construction to increase.

P20-15 Part II : P2503.7-CUDAHY4677

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: Air testing (of plastic piping) is not safe to do. This exception could be misunderstood to by inspectors to just allow air testing for plastic piping.

Assembly Motion: As Submitted
Online Vote Results: Failed
Support: 40.74% (66) Oppose: 59.26% (96)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Michael Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservices.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

P2503.7 Water-supply system testing. Upon completion of the water-supply system or a section of it, the system or portion completed shall be tested and proved tight under a water pressure of not less than the working pressure of the system or, for piping systems other than plastic, by an air test of not less than 50 psi (345 kPa). This pressure shall be held for not less than 15 minutes. The water used for tests shall be obtained from a potable water source.

> **Exception:** For plastic piping systems intended for pressure service, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by all of the manufacturer's instructions for the plastic pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws, or regulations outside of this code.

Commenter's Reason: We would like to submit the following modification to limit this testing exception to only pressure systems as we did for part I.

Public Comment 2:

Proponent : Mary Kimlinger, representing Uponor (mary.kimlinger@uponor.com); Gary Morgan, representing Viega LLC (gary.morgan@viega.us) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

P2503.7 Water-supply system testing. Upon completion of the water-supply system or a section of it, the system or portion completed shall be tested and proved tight under a water pressure of not less than the working pressure of the system or, for piping systems other than plastic, by an air test of not less than 50 psi (345 kPa). This pressure shall be held for not less than 15 minutes. The water used for tests shall be obtained from a potable water source.

> **Exception:** For ~~plastic~~ PEX piping systems, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by all of the manufacturer's instructions for the plastic pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws, or regulations outside of this code.

Commenter's Reason:
[KIMLINGER]: During the CAH the commitee voted to disapprove the original change proposal because the term "plastic piping" was too vague to clearly define which piping materials should be allowed to be tested with air. This public comment addresses that concern by changing "plastic" to "PEX". This same change was made via a floor modification during the CAH for the IRC-M (Item #RM45-15) and was approved by that committee. Piping such as PEX will not shatter under pressure and poses no greater risk in an air pressure test than a metallic piping material. In addition, there are certain situations that make testing with water not feasible, such as below freezing temperatures and limited water access during install.

[**MORGAN]**: The intent of this proposal was to simply update the codes to allow for air testing of certain types of non-rigid plastic piping systems which are as safe to test with air as with metallic plumbing systems such as copper. The original proposal was lacking in that rather than specifically state the type of plastic pipe which can be safely tested, the proposal was "vague" and lacking definition that the technical committee was seeking and as a result this proposal was narrowly defeated by the residential plumbing committee with a vote of 5/4 for disapproval.

The same exact proposals (M150 & RM45) were made both in the residential mechanical and mechanical codes (which were heard after the plumbing codes) and with only one simple floor modification, both proposals passed unanimously by their respective technical committees.

It is commonly known and understood that PEX, like other polyolefin materials, will NEVER burst in a brittle way and will NEVER shatter unlike the rigid plastic pipes such as CPVC and PVC. If PEX fails during pressure testing it is ALWAYS in a ductile way where no parts of the pipe break into pieces. Therefore the simple addition of "PEX" used in place of "plastic" in the proposed exception statement will make it abundantly clear that PEX can be air tested safely.

This proposed modification simply applies the same exact language to the proposal as done for M150 and RM45.

The opponents of the original proposal spoke of catastrophic failures of plastic pipe where the pipe shattered and caused bodily harm but these
same opponents readily admitted that these failures were all those of rigid plastic piping and NOT that of PEX tubing. I urge the voting members to end this unnecessary and long standing prohibition of air testing PEX piping systems which is absolutely no more hazardous to air test than metallic piping systems such as copper.

We urge acceptance of the original proposal as modified.

P20-15 Part II

P25-15
312.10.1

Proposed Change as Submitted

Proponent : Michael Anthony, University of Michigan, representing University of Michigan (maanthon@umich.edu)

2015 International Plumbing Code

Revise as follows:

312.10.1 Inspections. ~~Annual~~ Periodic inspections shall be made of all backflow prevention assemblies and *air gaps* to determine whether ~~they~~ the assemblies are operable and the air gaps exist. The inspection intervals shall be determined by an approved reliability-centered inspection, testing and maintenance program or, in absence of such a program, inspections shall occur annually.

Reason:
We are over-testing on annual fixed interval testing in some installations and under-testing in others. Reliability centered maintenance is a method used by the airline industry and the military to use resources wisely. Large research universities such as ours prioritize our testing according to hazard and sometimes exceed minimum levels set by the host municipality. In other installations our testing records show that testing intervals should be relaxed in order to reduce maintenance-induced failures.

Utilizing Reliability Centered Maintenance - RCM- principles makes it possible for the process to be data-driven, rather than utilizing an arbitrary prescriptive testing interval, which may result in over-testing. RCM analyzes the failure modes and the mean time between failures. This improvement to the code allows us to present the results of this analysis, along with proposed optimized testing intervals to the ASJ.

Bibliography: Reliability Centered Maintenance:
https://en.wikipedia.org/wiki/Reliability_centered_maintenance

It is generally used to achieve improvements in fields such as the establishment of safe minimum levels of maintenance, changes to operating procedures and strategies and the establishment of capital maintenance regimes and plans. Successful implementation of RCM will lead to increase in cost effectiveness, machine uptime, and a greater understanding of the level of risk that the organization is managing.

The late John Moubray, in his industry leading book RCM2, characterized Reliability-centered Maintenance as a process to establish the safe minimum levels of maintenance. This description echoed statements in the Nowlan and Heap report from United Airlines.

It is defined by the technical standard SAE JA1011, Evaluation Criteria for RCM Processes, which sets out the minimum criteria that any process should meet before it can be called RCM. This starts with the 7 questions below, worked through in the order that they are listed:

1. What is the item supposed to do and its associated performance standards?
2. In what ways can it fail to provide the required functions?
3. What are the events that cause each failure?
4. What happens when each failure occurs?

5. In what way does each failure matter?
6. What systematic task can be performed proactively to prevent, or to diminish to a satisfactory degree, the consequences of the failure?
7. What must be done if a suitable preventive task cannot be found?
Reliability centered maintenance is an engineering framework that enables the definition of a complete maintenance regime. It regards maintenance as the means to maintain the functions a user may require of machinery in a defined operating context. As a discipline it enables machinery stakeholders to monitor, assess, predict and generally understand the working of their physical assets. This is embodied in the initial part of the RCM process which is to identify the operating context of the machinery, and write a Failure Mode Effects and Criticality Analysis (FMECA). The second part of the analysis is to apply the "RCM logic", which helps determine the appropriate maintenance tasks for the identified failure modes in the FMECA. Once the logic is complete for all elements in the FMECA, the resulting list of maintenance is "packaged", so that the periodicities of the tasks are rationalised to be called up in work packages; it is important not to destroy the applicability of maintenance in this phase. Lastly, RCM is kept live throughout the "in-service" life of machinery, where the effectiveness of the maintenance is kept under constant review and adjusted in light of the experience gained.

RCM can be used to create a cost-effective maintenance strategy to address dominant causes of equipment failure. It is a systematic approach to defining a routine maintenance program composed of cost-effective tasks that preserve important functions.

The important functions (of a piece of equipment) to preserve with routine maintenance are identified, their dominant failure modes and causes determined and the consequences of failure ascertained. Levels of criticality are assigned to the consequences of failure. Some functions are not critical and are left to "run to failure" while other functions must be preserved at all cost. Maintenance tasks are selected that address the dominant failure causes. This process directly addresses maintenance preventable failures. Failures caused by unlikely events, non-predictable acts of nature, etc. will usually receive no action provided their risk (combination of severity and frequency) is trivial (or at least tolerable). When the risk of such failures is very high, RCM encourages (and sometimes mandates) the user to consider changing something which will reduce the risk to a tolerable level.

The result is a maintenance program that focuses scarce economic resources on those items that would cause the most disruption if they were to fail.

RCM emphasizes the use of Predictive Maintenance (PdM) techniques in addition to traditional preventive measures.

Cost Impact: Will not increase the cost of construction
Likely less, because IT&M costs will be rationalized so that our testing costs are applied proportionate to the risk. Large research universities such as ours prioritize our testing according to hazard and sometimes exceed minimum levels set by the host municipality. In other installations our testing records show that testing intervals should be relaxed in order to reduce maintenance-induced failures.

P25-15 : 312.10.1-ANTHONY5302

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee did not know what a "reliability centered program" was. Further explanation is needed to understand this proposal.

Individual Consideration Agenda

Public Comment 1:

Proponent : Michael Anthony, University of Michigan, representing University of Michigan (maanthon@umich.edu) requests Approve as Submitted.

Commenter's Reason:
The Committee's reason seems to indicate that they did not read the extensive bibliography provided in the proposal to understand the concept of Reliability Centered Maintenance (RCM). More importantly, why RCM is a superior method for determining when components need to be tested and preventative maintenance needs performed. The key point to take away from an understanding of RCM is that *fixed interval testingof componentsfrequently causes more failures than it prevents*. The first term of RCM is *Reliability*. Doesn't the plumbing community want *the best possible assurance* that backflow prevention assemblies *will work* when conditions occur that could cause a backflow event ?

Reliability Centered Maintenance is not a new concept and is a decades-proven, established method for obtaining the most reliable service from equipment of a plant, building or site. World-class organizations have been using RCM to "keep the machinery running" at top performance levels to prevent unscheduled downtime and occurrences of unsafe events.

This proposal only allows RCM methods to be used *as an alternate* to fixed interval testing of backflow prevention assemblies. Organizations that don't use RCM can simply inspect on fixed intervals. Those organizations that do use RCM can increase the reliability and safety of backflow prevention assemblies that are in their control.

The decision to approve this proposal should be easy. I urge voters to make a step towards having the code allow for modern inspection interval methods that will provide for greater safety.

P25-15

P30-15

Table 403.1 (IBC Table 2902.1)

Proposed Change as Submitted

Proponent : Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Plumbing Code

Revise as follows:

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	A-1[d]	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		A-2[d]	Nightclubs, bars, taverns, dance halls and buildings for similar purposes	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
			Restaurants, banquet halls and food courts	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
			Casinos	1 per 100 for the first 400 and 1 per 250 for the remainder exceeding 400	1 per 50 for the first 400 and 1 per 150 for the remainder exceeding 400	1 per 250 for the first 750 and 1 per 500 for the remainder exceeding 750		—	1 per 1,000	1 service sink
		A-3[d]	Auditoriums without perma-nent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink

			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750	—	1 per 1,000	1 service sink
			Places of worship and other religious services	1 per 150	1 per 75	1 per 200	—	1 per 1,000	1 service sink

(Portions of table not shown remain unchanged)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.

Reason: The Plumbing Fixture Count Table 403.1 (IBC [P] 2902.1) does not address casinos as a specific use. The building codes are beginning to recognize the unique nature of the use and occupancy for these structures; as an example the code recognizes an occupant load factor of 1:11 for gaming areas. Casinos have been constructed outside of Las Vegas for years and it appears that this trend is continuing nationally. A fixture count for this use is a necessary addition to the code.

As an A-2 occupancy, the code user is currently required to select either the Restaurants/Banquet Halls or Nightclubs/Bars uses under the A-2 occupancy in Table 403.1 (IBC [P] 2902.1) to set fixture counts, 1:75 and 1:40, respectively. The fixture counts provided in this amendment closely resemble the fixture count table used in the Southern Nevada, including the Las Vegas strip. There has been no history in Las Vegas of long lines at Casino restrooms. Casinos represent a unique place where restaurants, gaming, retail and shows are combined into one expansive building. However, even with large crowds on gaming floors, restroom facilities are not so overcrowded as to produce long lines.

Specifically, for a 30,000-ft^2 Casino,Table 403.1 (IBC [P] 2902.1)would require 152% of the number of fixtures that are currently required *if* Casinos are tabulated as large assembly space (nightclub/bar). As a restaurant or banquet hall, Table 403.1 (IBC [P] 2902.1) would require 238% of the number of fixtures required by Table 403.1 (IBC [P] 2902.1).

This amendment also accounts for increase usage and need for female restroom similar to A-4 and A-5 occupancies.

Cost Impact: Will not increase the cost of construction
This proposal provides a more lenient fixture count for casinos, so the cost of construction would presumably decrease.

P30-15 : T403.1 (IBC [P] 2901.1)-DIGIOVANNI3854

Public Hearing Results

The following is errata that was posted on the ICC website:

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	A-1[d]	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		A-2[d]	Nightclubs, bars, taverns, dance halls and buildings for similar purposes	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
			Restaurants, banquet halls and food courts	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
			Casinos	1 per 100 for the first 400 and 1 per 250 for the remainder exceeding 400	1 per 50 for the first 400 and 1 per 150 for the remainder exceeding 400	1 per 250 for the first 750 and 1 per 500 for the remainder exceeding 750		—	1 per 1,000	1 service sink

		A-3[d]	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200	—	1 per 500	1 service sink
			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750	—	1 per 1,000	1 service sink
			Places of worship and other religious services	1 per 150	1 per 75	1 per 200	—	1 per 1,000	1 service sink

(Errata already incorporated into cdpACCESS.)

Committee Action: **Disapproved**

Committee Reason: Casinos can have numerous types of uses within the casino building. Putting all casinos under the same row doesn't seem to be what the proponent is intending to accomplish.

Assembly Action: None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Submitted.**

Commenter's Reason: The justification offered by the Committee for recommending denial is inconsistent with Section 403.1. The Committee expressed concerns with casinos having restaurants or theater. That is addressed in Section 403.1. If there is a different use, the fixture count for that use applies. Currently, there is no appropriate fixture count for casinos. The proposed fixture count is consistent with meeting the needs of individuals at a casino. The Committee had no problem with the fixture count proposed. There only concern was mixed use, which as previously indicated, is addressed in the code. This change should be approved as submitted.

Public Comment 2:

Proponent : **Kevin McOsker, representing Southern Nevada Chapter of ICC (ktm@ClarkCountyNV.gov) requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Plumbing Code

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	A-1[d]	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		A-2[d]	Nightclubs, bars, taverns, dance halls and buildings for similar	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink

			purposes						
			Restaurants, banquet halls and food courts	1 per 75	1 per 75	1 per 200	—	1 per 500	1 service sink
			CasinosGaming Areas	1 per 100 for the first 400 and 1 per 250 for the remainder exceeding 400	1 per 50 for the first 400 and 1 per 150 for the remainder exceeding 400	1 per 250 for the first 750 and 1 per 500 for the remainder exceeding 750	—	1 per 1,000	1 service sink
		A-3[d]	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200	—	1 per 500	1 service sink
			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750	—	1 per 1,000	1 service sink
			Places of worship and other religious services	1 per 150	1 per 75	1 per 200	—	1 per 1,000	1 service sink

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.

Commenter's Reason: A fixture count for a casino gaming area is not currently defined in the code. This proposal was added to provide a fixture count for this specific use. With the current proposal, the term "Casino" was modified to "Casino Gaming Areas" to provide more clarity to the proposed intent. The term "Gaming Area" was approved by the IBC – Egress Committee in code proposal E167-15. The Plumbing Committee disapproved the original proposal because the term "Casino" was inclusive of the gaming area and the other uses in a "Casino" (including: nightclubs, theaters, restaurants, convention areas, and retail establishments). The gaming areas is the primary use of a "Casino" and yet this use is not defined in Table 29-A. Currently, casino gaming is allowed in 48 of the 50 United States and the code user is not provided adequate direction with respect to the fixture count for this use. Clark County, including the Las Vegas strip, has locally amended the fixture count table, and this proposal is very similar to the Southern Nevada amendment which has been successful in the region for more than 20 years.

P30-15

P31-15

Table 403.1 (IBC Table 2902.1)

Proposed Change as Submitted

Proponent : Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Plumbing Code

Revise as follows:

TABLE 403.1

MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a](See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	A-1[d]	Theaters and other buildings for the performing arts and motion pictures							1 service sink[e]
		A-2[d]	Nightclubs, bars, taverns, dance halls and buildings for similar purposes							1 service sink[e]
			Restaurants, banquet halls and food courts							1 service sink[e]
		A-3[d]	Auditoriums without perma-nent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums							1 service sink[e]
			Passenger terminals and transportation facilities							1 service sink[e]
			Places of worship and other religious							1 service sink[e]

			services						

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1 (cont.)	Assembly	A-4	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities							1 service sink[e]
		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities							1 service sink[e]
2	Business	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses							1 service sink[e]
3	Educational	E	Educational facilities							1 service sink[e]
4	Factory and industrial	F-1 and F-2	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials							1 service sink[e]

5	Institutional	I-1	Residential care					1 service sink[e]
		I-2	Hospitals, ambulatory nursing home care recipient					1 service sink per floor[e]
			Employees, other than residential care[b]					—
			Visitors, other than residential care					—
		I-3	Prisons[b]					1 service sink[e]
			Reformitories, detention centers, and correctional centers[b]					1 service sink[e]
			Employees[b]					—
		I-4	Adult day care and child day care					1 service sink[e]

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
6	Mercantile	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers							1 service sink[e]
7	Residential	R-1	Hotels, motels, boarding houses (transient)							1 service sink[e]
		R-2	Dormitories, fraternities,							1 service

			sororities and boarding houses (not transient)					sink[e]
		R-2	Apartment house					1 kitchen sink per dwelling unit; 1 auto-matic clothes washer con-nection per 20 dwelling units
		R-3	Congregate living facilities with 16 or fewer persons					1 service sink[e]
		R-3	One- and two-family dwellings and lodging houses with five or fewer guestrooms					1 kitchen sink per dwelling unit; 1 auto-matic clothes washer con-nection per dwelling unit
		R-4	Congregate living facilities with 16 or fewer persons					1 service sink[e]
8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, store- house and freight depots. Low and Moderate Hazard.					1 service sink[e]

(Portions of table not shown remain unchanged)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number

of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. ~~For business and mercantile occupancies with an occupant load of 15 or fewer,s~~Service sinks shall not be required~~.~~ where the occupant load is 30 or fewer.

Reason: This proposal revises note e and applies note "e" to each of the service sink entries in the table, so that it addresses all occupancies required to have service sinks, not just B and M occupancies. Note "e" is revised to trigger the service sink at an occupant load of over 30, rather than the current trigger of 15 found in the note.

Cost Impact: Will not increase the cost of construction
This proposal provides a more lenient approach for fixture requirements, so the cost of construction is not increased.

P31-15 : T403.1-DIGIOVANNI3856

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: Raising the number of occupants threshold and applying the note to all service sink applications would result in some occupancies that really need these sinks, such as small healthcare offices and small restaurants not to have service sinks (but need them to meet other regulations).

Assembly Action :

None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Plumbing Code

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a](See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
6	Mercantile	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—	1 per 1,000	1 service sink[e]
7	Residential	R-1	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit	—	1 service sink[e]

		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10	1 per 10	1 per 8	1 per 100	1 service sink[e]
		R-2	Apartment house	1 per dwelling unit	1 per dwelling unit	1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 auto-matic clothes washer con-nection per 20 dwelling units
		R-3	Congregate living facilities with 16 or fewer persons	1 per 10	1 per 10	1 per 8	1 per 100	~~1 service sink[e]~~
		R-3	One- and two-family dwellings and lodging houses with five or fewer guestrooms	1 per dwelling unit	1 per dwelling unit	1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 auto-matic clothes washer con-nection per dwelling unit
		R-4	Congregate living facilities with 16 or fewer persons	1 per 10	1 per 10	1 per 8	1 per 100	~~1 service sink[e]~~
8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, store- house and freight depots. Low and Moderate Hazard.	1 per 100	1 per 100	See Section 411	1 per 1,000	1 service sink[e]

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number

of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. ~~For business and mercantile occupancies with an occupant load of 15 or fewer,~~ Service sinks shall not be required ~~for occcupant loads of~~ where the occupant load is 30 or fewer.

Commenter's Reason: The proposed modification is editorial in nature. The proposed change would only require a service sink when there is an occupancy of more than 30. These two facilities always have an occupant load of less than 30. Therefore, there is no need to reference a service sink.

The proponent has a valid reason for reducing the requirements for service sink. This is a plumbing fixture that architects and engineers are constantly requesting be not required, especially for smaller buildings. The code should allow the building owner to determine if a service sink is necessary for smaller buildings.

Most smaller building do not use their service sink. Often times, the trap dries out from lack of use allowing sewer gas to enter the building. One has to weight the perceived health issues of not having a service sink versus providing one that allows sewer gas into the building. It is more appropriate to remove the requirement for a service sink when the occupant load is 30 or less.

P31-15

P34-15

Table 403.1 (IBC Table 2902.1)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	~~OCCUPANCY~~	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	~~A-1~~[d]	Theaters and other buildings for the performing arts and motion pictures							
		~~A-2~~[d]	Nightclubs, bars, taverns, dance halls and buildings for similar purposes							
			Restaurants, banquet halls and food courts							
		~~A-3~~[d]	Auditoriums without perma-nent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums							
			Passenger terminals and transportation facilities							
			Places of worship and other religious							

			services						

NO.	CLASSIFICATION	~~OCCUPANCY~~	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1 (cont.)	Assembly	~~A-4~~	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities							
		~~A-5~~	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities							
2	Business	~~B~~	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses							
3	Educational	~~E~~	Educational facilities							
4	Factory and industrial	~~F-1 and F-2~~	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials							

5	Institutional	~~I-1~~	Residential care					
		~~I-2~~	Hospitals, ambulatory nursing home care recipient					
			Employees, other than residential care[b]					
			Visitors, other than residential care					
		~~I-3~~	Prisons[b]					
			Reformitories, detention centers, and correctional centers[b]					
			Employees[b]					
		~~I-4~~	Adult day care and child day care					

NO.	CLASSIFICATION	~~OCCUPANCY~~	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
6	Mercantile	~~M~~	Retail stores, service stations, shops, salesrooms, markets and shopping centers							
7	Residential	~~R-1~~	Hotels, motels, boarding houses (transient)							
		~~R-2~~	Dormitories, fraternities, sororities and boarding							

			houses (not transient)					
		~~R-2~~	Apartment house					
		~~R-3~~	Congregate living facilities with 16 or fewer persons					
		~~R-3~~	One- and two-family dwellings and lodging houses with five or fewer guestrooms					
		~~R-4~~	~~Congregate living facilities with 16 or fewer persons~~	~~1 per 10~~	~~1 per 10~~	~~1 per 8~~	~~1 per 100~~	~~1 service sink~~
8	Storage	~~S-1 S-2~~	Structures for the storage of goods, warehouses, store- house and freight depots. Low and Moderate Hazard.					

(Portions of table not shown remain unchanged)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile ~~occupancies~~classifications with an occupant load of 15 or fewer, service sinks shall not be required.

Reason: Section 403.1 was revised for the 2015 IPC to direct the reader to the use of a building rather than its IBC occupancy classification (Group) for determining the number of plumbing fixtures. The occupancy column is Table 403.1 is now really confusing as Section 403.1 says to use the Description column but this Occupancy column implies that the IBC classification is to be used. This proposal removes the occupancy column for clarity and coordination with what Section 403.1 states.

Table 403.1 will still retain the classification column, although that column doesn't seem to add any clarification to the table as the IPC doesn't speak of "classifications" for various uses. However, as Table 403.1 is reprinted in the IBC (as Table [P] 2902.1), the classification column might incorrectly lead IBC readers to assume that the IBC occupancy classification (Group) has something to do with selection of an appropriate row for plumbing fixture requirements. IBC Section [P] 2902.1 is identical to Section 403.1 in the IPC but if the reader neglects reading the IBC section and jumps directly to the table, the existence of classification column could cause a misunderstanding.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 191.

Cost Impact: Will not increase the cost of construction

This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: Based on changes made to Section 403.1 for the 2012 IPC, the occupancy classsification of a building space no longer impacts the selection of the row in Table 403.1 for determining the number of plumbing fixtures. The use description does, therefore, the occupancy classsification column needs removed from the table to avoid confusion about how the table is to be used.

Assembly Action :

None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Carl Baldassarra, P.E., FSFPA, representing Code Technologies Committee (CTC@iccsafe.org); John Williams, CBO, representing Adhoc Healthcare Committee (AHC@iccsafe.org) requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Plumbing Code

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
			MALE	FEMALE	MALE	FEMALE			
2	Business	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial, ambulatory care and similar uses	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		—	1 per 100	1 service sink[e]
5	Institutional	~~Residential care~~Custodial care facilities	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		Medical care recipients in hospitals~~,~~ ~~ambulatory~~ nursing homes ~~care recipient~~	1 per room[c]		1 per room[c]		1 per 15	1 per 100	1 service sink per floor
		Employees~~,~~ in hospitals and nursing homes~~other than residential care~~[b]	1 per 25		1 per 35		—	1 per 100	—
		Visitors in hospitals and nursing homes~~,~~ ~~other than residential care~~	1 per 75		1 per 100		—	1 per 500	—

		Prisons[b]	1 per cell	1 per cell	1 per 15	1 per 100	1 service sink
		Reformitories, detention centers, and correctional centers[b]	1 per 15	1 per 15	1 per 15	1 per 100	1 service sink
		Employees in reformitories, detention centers and correctional centers[b]	1 per 25	1 per 35	—	1 per 100	—
		Adult day care and child day care	1 per 15	1 per 15	1	1 per 100	1 service sink

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile~~occupancies~~ classifications with an occupant load of 15 or fewer, service sinks shall not be required.

Commenter's Reason: This is intended as clarification only. Without the distinction between the Group I requirements, which row to use for requirements is not clear. For example, two different rows are specified for 'employees'. The phases used are consistent with the defined terms for custodial care and medical care facilities.

P34-15

P36-15 Part I

202 (New), Table 403.1 (IBC 2902.1), 403.1.1 (New) (IBC 2902.1.1 (New))

Proposed Change as Submitted

Proponent : Cornelia M Orzescu, Town of Parker, representing Colorado Chapter of the ICC, Code Change Committee, representing Town of Parker (corzescu@parkeronline.org)

2015 International Plumbing Code

Add new text as follows:

403.1.1 Outdoor public swimming pool fixtures Outdoor public swimming pools used for aquatic recreation and having a water area of less than 7500 ft^2 (697 m^2) shall have not less than one water closet, one urinal, one lavatory and one shower for males and not less than two water closets, one lavatory and one shower for females.

Outdoor public swimming pools used for aquatic recreation having a water area of 7500 ft^2 (697 m2) or more shall have, for every 7500 ft^2 (697 m^2) or portion thereof, not less than 0.7 water closets, one urinal, 0.85 lavatory and one shower for males and not less than two water closets, one lavatory and one shower for females. Where the result of a fixture calculation is a portion of a whole number, the result shall be rounded up to the nearest whole number.

Section 403.1.1 (Fixture calculations) shall not apply where complying with this section.

Add new definition as follows:

SECTION 202
DEFINITIONS

PUBLIC SWIMMING POOL A pool, other than a residential pool, that is intended to be used for swimming or bathing and is operated by an owner, lessee, operator, licensee or concessionaire, regardless of whether a fee is charged for use.

Revise as follows:

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1 (cont.)	Assembly	A-4	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities[f]	1 per 75 for the first1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink

(Portions of table not shown remain unchanged)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.

f. For outdoor public swimming pools used for aquatic recreation, see Section 403.1.1

Reason: Trying to figure out a plumbing fixture count associated with outdoor public swimming pools when there is not a "building occupant load" is a doubting task. The proposed fixture count is based on the 2015 International Swimming Pool and Spa Code provisions Section 609 for Toilet rooms and bathrooms.
Note f is added to Table 403.1 to point the code user to this new section and to not attempt to use "building occupant load" numbers, Table 403.1 fixture ratios for A-5 and the calculation method of existing 403.1.1. That will result in far too many fixtures for an outdoor public swimming pool application.

This new section would not apply to buildings that might be associated with a public pool such as a club house.

Instead of just referencing the 2015 ISPSC for the number of required plumbing fixtures, the verbiage is included in the IPC for jurisdictions that otherwise will not adopt or have not adopted the 2015 ISPSC.

This proposed langauge for the IPC will hopefully be approved to be carried into Chapter 29 the 2018 IBC as it is integral to the information that is normally in IBC Chapter 29.

Bibliography: Title of book- 2015 International Swimming Pool and Spa Code
Year published-2014

Page #35

Cost Impact: Will not increase the cost of construction
Because this proposal is not based on an occupant load, this will result in a cost decrease as compared to the cost of the number of required fixtures based on IPC Table 403.1.

P36-15 Part I : 403.1.1 (New)-ORZESCU6014

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: There is a terminology issue as "aquatic recreation" seems to be pointing to pools only in aquatic recreational facilities. The ISPSC already covers those requirements so this proposal isn't needed-the requirementi s already covered.

Assembly Action: None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Cornelia M Orzescu, representing Colorado Chapter of the ICC, Code Development/Change Committee (corzescu@parkeronline.org) requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Plumbing Code

TABLE 403.1

MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.

f. ~~For outdoor public swimming pools used for aquatic recreation, see Section 403.1.1.~~ The required number and type of plumbing fixtures for outdoor public swimming pools shall be in accordance with Section 609 of the *International Swimming Pool and Spa Code*.

~~**403.1.1 Outdoor public swimming pool fixtures** Outdoor public swimming pools used for aquatic recreation and having a water area of less than 7500 ft^2 (697 m^2) shall be provided with not less than one water closet, one urinal, one lavatory and one shower for males and not less than two water closets, one lavatory and one shower for females.~~

~~Outdoor public swimming pools used for aquatic recreation having a water area of 7500 ft^2 (697 m2) or more shall provided with, for every~~

~~7500 ft^2 (697 m^2) or portion thereof, not less than 0.7 water closets, one urinal, 0.85 lavatory and one shower for males and not less than two water closets, one lavatory and one shower for females. Where the result of a fixture calculation is a portion of a whole number, the result shall be rounded up to the nearest whole number.~~

~~Section 403.1.1 (Fixture calculations) shall not apply where complying with this section.~~

Commenter's Reason: The Committee did not agree with the term recreational aquatic facilities and felt that the fixture count is already adressed by the International Swimming Pool and Spa Code(ISPSC). Foot note f will direct the user to determine the fixture count as defined by the ISPSC based on the water area not pool occupant and deck occupant combined.

Outdoor public swimming pool fixtures Outdoor public swimming pools used for aquatic recreation and having a water area of less than 7500 ft2 (697 m2) shall have not less than one water closet, one urinal, one lavatory and one shower for males and not less than two water closets, one lavatory and one shower for females.

Outdoor public swimming pools used for aquatic recreation having a water area of 7500 ft2 (697 m2) or more shall have, for every 7500ft2 (697 m2) or portion thereof, not less than 0.7 water closets, one urinal, 0.85 lavatory and one
shower for males and not less than two water closets, one lavatory and one shower for females. Where the result of a fixture calculation is a portion of a whole number, the result shall be rounded up to the nearest whole number.

The code references other codes all the time. For example IRC refers to the International Swimming Pool and Spa code in Section R326. A new section 101.4.8 referencing the pool code will be submitted in Group B changes.

P36-15 Part I

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

P36-15 Part II

IBC 2902.1.1 (New), IBC Table 2902.1

Proposed Change as Submitted

Proponent : Cornelia M Orzescu, Town of Parker, representing Colorado Chapter of the ICC, Code Change Committee, representing Town of Parker (corzescu@parkeronline.org)

2015 International Building Code

Add new text as follows:

2902.1.1 **Outdoor public swimming pool fixtures** Outdoor public swimming pools used for aquatic recreation and having a water area of less than 7500 ft^2 (697 m^2) shall be provided with not less than one water closet, one urinal, one lavatory and one shower for males and not less than two water closets, one lavatory and one shower for females.

Outdoor public swimming pools used for aquatic recreation having a water area of 7500 ft^2 (697 m^2) or more shall be provided with, for every 7500 ft^2 (697 m^2) or portion thereof, not less than 0.7 water closets, one urinal, 0.85 lavatory and one shower for males and not less than two water closets, one lavatory and one shower for females. Where the result of a fixture calculation is a portion of a whole number, the result shall be rounded up to the nearest whole number.

Section 2902.1.1 (Fixture calculations) shall not apply where complying with this section.

Cost Impact: Will not increase the cost of construction
Because this proposal is not based on an occupant load, this will result in a cost decrease as compared to the cost of the number of required fixtures based on IPC Table 403.1.

Analysis: Changes to IPC Table 403.1 made by PART I will automatically change IBC Table 2902.1.

P36-15 Part II : 2902.1.1 (New)-ORZESCU6015

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: Consistency with action on P36 Part I.

Assembly Action : None

P37-15

403.1.2 (New) (IBC 2902.1.2 (New))

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Add new text as follows:

403.1.2 Excess number of elimination fixtures for males. Where the combined number of water closets and urinals for males exceeds the number of male water closets required by Section 403.1, the total number of water closets for females shall be increased by the number of combined fixtures for males that exceeds the required number of water closets for males, adjusted as necessary by the statistical requirements of Section 403.1.1.

Reason: Potty parity was a part of the Plumbing Code from its inception. The goal of the code requirements on number of fixtures between the sexes is to provide the same waiting time for men and women using the facilities.
Because of space differentials, the combined number of water closets and urinals in the men's room often exceeds the number required by code. However, the women's room may have the required number of water closets. This results in an unequal waiting time for use of the plumbing fixtures. As a result, potty parity is not achieved.

This code requirement will mandate that the number of water closets in the women's room must be increased by the same percentage as the number of water closets and urinals in the men's room. The result will be potty parity with the same waiting time between the men and women.

Cost Impact: Will increase the cost of construction
This will add cost when additional water closets are required to be installed in the women's room.

P37-15 : 403.1.2 (New)-BALLANCO3813

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal would require fixtures in excess of the minimum requirements of the code.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: This change is important for maintaining potty parity. Currently, an owner can offset the number of fixture in the men's room without any consequences other than that the female population will have to wait longer to use the fixtures than the male population. Potty parity is considered a constitutional right to provide equal waiting time for the use of plumbing fixtures. While this change may require additional fixtures beyond the code minimum that is only to provide balance in fixture use between the sexes. The owner always has the option to provide the code minimum number of fixtures for each sex, then there are no additional fixtures required.

P37-15

P39-15

403.1.2 (New) (IBC 2902.1.2 (New))

Proposed Change as Submitted

Proponent : Billy Smith, American Society of Plumbing Engineers Legislative Committee, representing American Society of Plumbing Engineers Legislative Committee (bsmith@aspe.org)

2015 International Plumbing Code

Add new text as follows:

403.1.2 Excess number of male fixtures. Where the sum of the numbers of installed water closets and urinals for males will be in excess of the required number of male water closets, and the sum is greater than the required number of female water closets, the number of installed female water closets shall be the total of the number of required female water closets and the excess number of male fixtures.

Reason: ASPE has long been a proponent of potty parity. The original values found in the International Plumbing Code were based on a paper published by ASPE. The goal of the code is to provide the same waiting time for men and women using the facilities.
Because of space differentials, the combined number of water closets and urinals in the men's room exceeds the number required by code. However, the women's room has the required number of water closets. This results in an unequal waiting time for use of the plumbing fixtures. As a result, potty parity is not achieved.

This code requirement will mandate that the number of water closets in the women's room must be increased by the same percentage as the number of water closets and urinals in the men's room. The result will be potty parity with the same waiting time between the men and women.

Cost Impact: Will not increase the cost of construction
This does not increase the cost since the change merely provides options for the installer or designer.

P39-15 : 403.1.2 (New)-SMITH5374

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Consistency with the action on P39-15.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: This change is similar to P37. There is slightly different wording. This change is important for maintaining potty parity. Currently, an owner can offset the number of fixture in the men's room without any consequences other than that the female population will have to wait longer to use the fixtures than the male population. Potty parity is considered a constitutional right to provide equal waiting time for the use of plumbing fixtures. While this change may require additional fixtures beyond the code minimum that is only to provide balance in fixture use between the sexes. The owner always has the option

P39-15

P40-15
403.1.2 (IBC 2902.1.2)

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Plumbing Code

Revise as follows:

403.1.2 ~~Family or assisted-use~~ Single-user toilet facility and ~~bath~~ bathing room fixtures. ~~Fixtures~~
The plumbing fixtures located ~~within~~ in single-user toilet facilities and bathing rooms, including family or assisted-use toilet and bathing rooms that are required by Section 1109.2.1 of the *International Building Code*~~are permitted to be included in~~ , shall contribute towards the total number of required plumbing fixtures for ~~either the male~~ a building or ~~female occupants in assembly~~ tenant space. Single-user toilet facilities and ~~mercantile *occupancies.*~~ bathing rooms, and family or assisted-use toilet and bathing rooms shall not be required to be identified for exclusive use by either sex.

Reason: The use of single-user toilets has become increasingly beneficial system of providing not only better facilities, but more user friendly facilities. A higher level of privacy is achieved, the facilities are typically better maintained by the users, and the efficiencies of having unisex facilities where the users are of a dominate sex are significantly increased.
Similarly, this code change removes the limitation of use for family or assisted-use facilities to mercantile and assembly occupancies. Families or persons requiring assisted-use can be found in various occupancies and should be allowed as providing required toilets. Currently, when there are multiple single-user toilets 50% of them are required to be accessible. If this is compared with the standard ganged toilet rooms where there are multiple toilet fixtures, the number of accessible toilets and thus a greater number of useful toilets by everyone will be increased by this change.

Cost Impact: Will not increase the cost of construction
The single-user toilet room will reduce the cost of construction. Based on the minimum number of toilets, the larger general area required for circulation for multi-fixtured toilet rooms can be eliminated in large part because areas such as sight-blocking and the multiplier for urinals for credit will be eliminated in multiple single-user toilet designs.

P40-15 : 403.1.2-COLLINS4506

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposed language results in not knowing how to calculate the number of males and females. If these new requirements result in a greater minimum number of plumbing fixtures, that will result in additional cost. More cost would conflict with the cost impact statement on the proposal.

Individual Consideration Agenda

Public Comment 1:

Proponent : Bruce Pitts, representing BHP (bhpbhp@yahoo.com) requests Approve as Submitted.

Commenter's Reason: 1. The American Restroom Association has designed and built clustered singe user toilet rooms with up to 50% square footage savings instead of having designed gang restrooms. They also strongly support single-user toilet facilities not be required to be identified for exclusive use by either sex for maximum function, safety, availability, ease of maintenance and changing social needs. They can discuss this in Long Beach.
2. The National Organization for Women (NOW) has lobbied Congress in the past for more single-user toilet rooms not be required to be identified for exclusive use by either sex. Regarding any sanitary concerns, NOW simply asks for disposable seat cover dispensers and soap dispensers at the lavatory in each single user restroom.

Public Comment 2:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

403.1.2 Single-user toilet facility and bathing room fixtures. The plumbing fixtures located in single-user toilet facilities and bathing rooms, including family or assisted-use toilet and bathing rooms that are required by Section 1109.2.1 of the International Building Code, shall contribute towards the total number of required plumbing fixtures for a building or tenant space. Single-user toilet facilities and bathing rooms, and family or assisted-use toilet and bathing rooms shall ~~not be required to~~ be identified for ~~exclusive~~ use by either sex.

Commenter's Reason: This is a good change and addresses many issues by allowing single occupant toilet rooms rather than grouped toilet rooms. This should be allowed as a designer option. The same number of fixtures are provided and waiting can be reduced by allowing either sex to use the toilet room. This will also addresses the concerns regarding transgender individuals as identified in Code Change P43.

Public Comment 3:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Plumbing Code

Delete and substitute as follows:

~~**403.1.2 Family or assisted-use toilet and bath fixtures.** Fixtures located within family or assisted-use toilet and bathing rooms required by Section 1109.2.1 of the *International Building Code* are permitted to be included in the number of required fixtures for either the male or female occupants in assembly and mercantile *occupancies*.~~

403.1.2 Single user toilet facility and bathing room fixtures. The plumbing fixtures located in single-user toilet facilities and bathing rooms, including family or assisted-use toilet and bathing rooms that are required by Section 1109.2.1 of the *International Building Code*, shall contribute towards the total number of required plumbing fixtures for a building or tenant space. The total number of fixtures provided, including those in single-user toilet facilities and bathing rooms and family or assisted-use toilet rooms, shall meet or exceed the aggregate number of fixtures required by Section 403.1. Single-user toilet facilities and bathing rooms, and family or assisted-use toilet and bathing rooms shall not be required to be identified for exclusive use by either sex.

Commenter's Reason: This modification to the original proposal is in response to the committees comment:
The proposed language results in not knowing how to calculate the number of males and females. If these new requirements result in a greater minimum number of plumbing fixtures, that will result in additional cost. More cost would conflict with the cost impact statement on the proposal.

With the additional text It should be clear that the number of fixxtures required for females and males must be met whether they are located in separated toilet rooms of in unisex or family or assisted-use toilet rooms.

P40-15

P41-15
403.2 (IBC 2902.2)

Proposed Change as Submitted

Proponent : Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Plumbing Code

Revise as follows:

403.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of ~~15~~ 30 or fewer.
3. Separate facilities shall not be required in mercantile *occupancies* in which the maximum occupant load is 100 or ~~fewer~~ less.
4. Separate facilities shall not be required in Group B occupancies in which the maximum occupany load is 50 or less provided a single toilet facility is designed for use by no more than one person at a time.

Reason: Section 403.2 (IBC Section 2902.2) requires that separate facilities be provided for males and females when plumbing fixtures are required by Table 403.1 (IBC Table 2902.1). Exception No. 2 to Section 403.2 (IBC Section 2902.2) allows shared facilities for spaces with a maximum occupant load of 15, while Exception No. 3 allows shared facilities for mercantile (Group M) occupancies with a maximum occupant load of 100. The proposed amendment is to modify Exception No. 2 to raise the minimum occupant load that requires separate facilities for males and females from 15 to 30.

With respect to the proposal for Exception #2, the following table identifies the occupant load factors for various occupancies based on IBC Table 1004.1.2 and shows the maximum area that would be allowed for each occupancy in order to avoid providing separate facilities. The table also shows the maximum area that the proposed amendment would allow for each occupancy in order to avoid providing separate facilities.

Occupancy	**Occupant Load Factor (OLF) (ft^2/person)**	**2015 IBC Max. Area Permitted without Separate Facilities (OLF x 15) (ft^2)**	***Proposed Amended* Max. Area Permitted without Separate Facilities (OLF x 30) (ft^2)**
Assembly (unconcentrated	15	225	450

use)			
Educational	20	300	600
Factory/Industrial	100	1500	3000
Institutional areas:			
Inpatient treatment areas	240	3600	7200
Outpatient areas	100	1500	3000
Sleeping areas	120	1800	3600
Residential	200	3000	6000
Storage	300	4500	9000

An additional modification in this proposal is to use terminology and the occupancy description used throughout the code in exception #3 to be consistent with typical code language.

Further, this proposal adds an exception to address Group B occupancies. This proposal is to allowGroup B (business) occupancies, with a total occupant load of 50 or less, including customers and employees, to have a single toilet facility provided that it is designed for use by no more than one person at a time. This appears to be a reasonable standard for small business spaces of 5,000 square feet or less. Current code requires separate facilities for business occupancies that exceed 1,500 square feet.

A single accessible toilet facility occupies approximately 50 ft^2. Therefore, requiring separate facilities for males and females in small businesses requires the loss of approximately an additional 50 ft^2 of floor area along with the cost of the additional plumbing fixtures and enclosure. Fifty square feet represents a significant percentage of the floor area for the minimum size of spaces that require separate facilities per the base IPC Section 403.2 (IBC Section 2902.2). This change is intended to benefit storefront/strip mall business tenants that individually provide facilities within their space. This proposal will have little impact to standard office buildings that typically share restroom facilities.

Cost Impact: Will not increase the cost of construction
This proposal will provide a more lenient approach for facilities in Group B occupancies, so construction costs are not increased with this proposal.

P41-15 : 403.2-DIGIOVANNI3855

Public Hearing Results

Committee Action: Disapproved

Committee Reason: One committee member's single-person survey indicated that women would not use a single-user toilet facility that was also used by men. Proposal P42-15 is a superior proposal to this proposal.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: The denial of this change was based on an unscientific one person survey that a certain female would not use the same bathroom as a man. This should never be the reason for denying the change. The other reason given was that P42 was considered the better change. However, P42 was also recommended for denial. Hence, there is no valid reason provided for denying this change. The supporting statement justifies the approval of this change.

P41-15

P43-15

403.2 (IBC 2902.2) , 403.2.1 (IBC 2902.1), 403.2.2 (New) (IBC 2902.2.2 New)) , 403.4 (IBC 2902.4)

Proposed Change as Submitted

Proponent : Shawn Meerkamper, Transgender Law Center, representing Transgender Law Center

2015 International Plumbing Code

Revise as follows:

403.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile *occupancies* in which the maximum occupant load is 100 or fewer.
4. Toilet facilities that have only one water closet shall not be identified for exclusive use by either sex, as provided in Sections 403.2.1 and 403.2.2 and shall be deemed to meet the requirements of this section.

403.2.1 Family or assisted-use toilet facilities serving as separate facilities. Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family or assisted-use toilet facilities shall be permitted to serve as the required separate facilities. Family or ~~assisteduse~~ assisted-use toilet facilities shall not ~~be required to~~ be identified for exclusive use by either sex as required by Section 403.4.

Add new text as follows:

403.2.2 Single-stall facilities Where toilet facilities have only one water closet, those facilities shall not be identified for exclusive use by either sex.

Revise as follows:

403.4 Signage. Required *public* facilities shall be provided with signs that ~~designate~~ indicate the sex or designated use, as required by ~~Section~~ Sections 403.2, 403.2.1, and 403.2.2. Signs shall be readily visible and located near the entrance to each toilet facility. Signs for accessible toilet facilities shall comply with Section 1111 of the *International Building Code*.

Reason: This proposal is jointly submitted by Transgender Law Center, National Center for Lesbian Rights, and National Center for Transgender Equality.
Many people have been in the frustrating position of waiting in line for a single-stall restroom while the restroom designated for the other gender sits empty. This proposal simply provides that single-stall restrooms must be available to people of

all genders, and clarifies that such single-user facilities do not violate existing laws requiring equal facilities to be available for men and for women. Amending the Plumbing Code as set forth above would increase the number of restrooms available to all people while especially benefitting parents with children of a different gender; senior citizens or people with disabilities who may require an attendant; people with bladder conditions; and people who don't fit narrow gender stereotypes, including some lesbian, gay, bisexual, and transgender people, for whom public restrooms can be sources of anxiety and sites of harassment or even violence. The consequences for public health can be serious: individuals who are unable to safely access public restrooms can develop medical problems from delaying or avoiding restroom usage.

This proposal mirrors policies already in effect in a number of major U.S. cities, including New York City, Philadelphia, San Francisco, Washington, D.C., West Hollywood, and Austin, Texas. Designating single-stall restrooms for use by all genders is also a growing trend at universities (including the University of California, which recently adopted this policy system-wide) and private businesses. Unfortunately, some institutions and government bodies find their options limited by codes such as the IPC that require single-stall restrooms to be limited to one gender. Adopting these amendments to the Plumbing Code would give guidance to local and state policymakers seeking to ensure that public restrooms are accessible and inclusive.

Bibliography: Building Practice: Gender-Inclusive, ADA-Accessible, and Family-Friendly Restrooms, University of California Santa Barbara, 2014, http://www.policy.ucsb.edu/policies/policy-docs/gender-inclusive-restroom.pdf.
D.C. Municipal Regulations Title 4 Section 802.2, 2006, http://www.dcregs.dc.gov/Gateway/RuleHome.aspx?RuleNumber=4-802.

Potty Parity in Perspective: Gender and Family Issues in Planning and Designing Public Restrooms, Journal of Planning Literature, Vol. 21 No. 3, Kathryn H. Anthony and Meghan Dufresne, 2007, Pg. 267, https://www.ideals.illinois.edu/bitstream/handle/2142/11713/Anthony%20JPL.pdf?sequence=4.

Gender-neutral Bathrooms in Libraries, Jane Sandberg, 2014, http://www.ala.org/glbtrt/sites/ala.org.glbtrt/files/content/popularresources/bathrooms%20b

Gendered Restrooms and Minority Stress: The Public Regulation of Gender and its Impact on Transgender People's Lives, Journal of Public Management & Social Policy, Vol. 19 No. 2, Jody L. Herman, 2013, Pg. 65, http://williamsinstitute.law.ucla.edu/wp-content/uploads/Herman-Gendered-Restrooms-and-Minority-Stress-June-2013.pdf.

West Hollywood Municipal Code Section 9.28.090, 2014, http://weho.granicus.com/MetaViewer.php?view_id=22&clip_id=2505&meta_id=86373.

Cost Impact: Will not increase the cost of construction
Costs associated with our proposed amendments are limited to signage and would have no effect on construction costs. Restroom signs that do not specify gender are available for comparable costs to those that do specify gender. To the extent that there are price reductions for buying in bulk, some establishments will actually save money if they only need to purchase many of one sign.

P43-15 : 403.2-MEERKAMPER5718

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The code identifies male and female facilites and there isn't

any need for anything other to be in the code. "Single stall" seems to indicate a compartment but a single user toilet room doesn't have a compartment.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jo Michael, Equality California, representing Equality California requests Approve as Submitted.

Commenter's Reason: Submitted on behalf of Equality California:
Most people don't realize under the International Code Council's current building codes, public and commercial spaces are actually required to restrict single-user restrooms to only one gender. This doesn't make sense.

The International Code Council should adopt P 43-15, following the examples set by Austin, TX; Santa Fe, NM, Washington, DC; and a number of other cities that now require single-user restrooms to be inclusive of all genders. Taking this important step will reduce wait times for everyone. Many people have been in the frustrating position of waiting in line for a single-stall restroom while the restroom designated for the other gender sits empty. In establishments that have two single-user restrooms, making those restrooms inclusive of all genders will double the options for everyone. This proposal will also make single-user restrooms more accessible to parents with a young child of a different gender as well as people with disabilities who have an attendant of another gender.

This proposal will also make single-user restrooms safer and more welcoming for many gay, lesbian, bisexual, and transgender people. People who do not fit traditional ideas of gender are often harassed or even assaulted simply for being in what other people incorrectly assume is the "wrong" restroom. Many gender nonconforming people are seen as both too feminine for the men's room and too masculine for the women's room. Adopting this proposal would help many people avoid that kind of harassment by increasing access to gender neutral restrooms for those who need them.

Additionally, as more and more local governments around the country enact policies like this one, the International Code Council risks being unresponsive to the public welfare, which could undermine the ICC's broader purpose of providing a model code for state governments that reflects the current best practices in construction and public accommodations. There is simply no reason that single-user restrooms should be labeled by sex. Please vote yes on P 43-15.

Public Comment 2:

Proponent : Susan Surface, Design in Public, representing Design In Public (comment text authored with Transgender Law Center) (info@designinpublic.org) requests Approve as Submitted.

Commenter's Reason: We put forth this comment in support of P 43-15, the Transgender Law Center's proposed revision to International Building Code.

Most people don't realize under the International Code Council's current building codes, public and commercial spaces are actually required to restrict single-user restrooms to only one gender. This doesn't make sense.

The International Code Council should adopt P 43-15, following the examples set by

Austin, TX; Santa Fe, NM, Washington, DC; Seattle, WA; and a number of other cities that now require single-user restrooms to be inclusive of all genders.

Taking this important step will reduce wait times for everyone. Many people have been in the frustrating position of waiting in line for a single-stall restroom while the restroom designated for the other gender sits empty. In establishments that have two single-user restrooms, making those restrooms inclusive of all genders will double the options for everyone.

This proposal will also make single-user restrooms more accessible to parents with a young child of a different gender as well as people with disabilities who have an attendant of another gender.

This proposal will also make single-user restrooms safer and more welcoming for many gay, lesbian, bisexual, and transgender people. People who do not fit traditional ideas of gender are often harassed or even assaulted simply for being in what other people incorrectly assume is the "wrong" restroom. Many gender nonconforming people are seen as both too feminine for the men's room and too masculine for the women's room. Adopting this proposal would help many people avoid that kind of harassment by increasing access to gender neutral restrooms for those who need them.

Additionally, as more and more local governments around the country enact policies like this one, the International Code Council risks being unresponsive to the public welfare, which could undermine the ICC's broader purpose of providing a model code for state governments that reflects the current best practices in construction and public accommodations. There is simply no reason that single-user restrooms should be labeled by sex. Please implement P43-15.

Sincerely,

Sharon Arnold
Seattle, WA

Patricia Baehler
Saint Paul, MN

Miriam Barnett, CEO
YWCA Pierce County
Tacoma, WA

Calvin Burnap
Licensed Mental Health Counselor
Seattle, WA

Roi Chang, PE, SE, LEED AP
ROICH Consulting, Structural Engineer
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Pedro Miguel Santos, Architect

Maxwell Ng, AIA
Massachusetts Transgender Political Coalition
Boston, MA

Carol Shasha
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Susan Surface, Assoc. AIA
Program Director, Design in Public
Seattle, WA

Leah K. Todd
Brooklyn, NY

Bibliography: 1) Building Practice: Gender-Inclusive, ADA-Accessible, and Family-Friendly Restrooms, University of California Santa Barbara, 2014,

http://www.policy.ucsb.edu/policies/policy-docs/gender-inclusive-restroom.pdf.

2) Seattle Mayor Wants All Gender Restrooms, King 5 News, July 7 2015, http://www.king5.com/story/news/local/seattle/2015/06/24/seattle-restrooms-all-gender/29234399/

3) D.C. Municipal Regulations Title 4 Section 802.2, 2006, http://www.dcregs.dc.gov/Gateway/RuleHome.aspx?RuleNumber=4-802.

4) Potty Parity in Perspective: Gender and Family Issues in Planning and Designing Public Restrooms, Journal of Planning Literature, Vol. 21 No. 3, Kathryn H. Anthony and Meghan Dufresne, 2007, Pg. 267, https://www.ideals.illinois.edu/bitstream/handle/2142/11713/Anthony%20JPL.pdf?sequence=4.

5) Gender-neutral Bathrooms in Libraries, Jane Sandberg, 2014, http://www.ala.org/glbtrt/sites/ala.org.glbtrt/files/content/popularresources/bathrooms%20b

6) Gendered Restrooms and Minority Stress: The Public Regulation of Gender and its Impact on Transgender People's Lives, Journal of Public Management & Social Policy, Vol. 19 No. 2, Jody L. Herman, 2013, Pg. 65, http://williamsinstitute.law.ucla.edu/wp-content/uploads/Herman-Gendered-Restrooms-and-Minority-Stress-June-2013.pdf

7) West Hollywood Municipal Code Section 9.28.090, 2014, http://weho.granicus.com/MetaViewer.php?view_id=22&clip_id=2505&meta_id=86373.

Public Comment 3:

Proponent : Harper Jean Tobin, National Center for Transgender Equality, representing National Center for Transgender Equality (hjtobin@transequality.org) requests Approve as Submitted.

Commenter's Reason: These comments are submitted on behalf of the National Center for Transgender Equality (NCTE). Founded in 2003, NCTE is a national nonprofit organization in the United States dedicated to improving the lives of transgender people through education and advocacy. NCTE regularly works with federal, state, and local government agencies and other institutions to develop policies and practices that increase accessbility and equity for all people. Recently, NCTE formed an alliance with the US Occupational Safety and Health Administration (OSHA) and helped inform a national best practice guide from OSHA on workplace restroom access. NCTE strongly supports P 43-15, which reflects an approach already recommended for workplaces by US OSHA and other US government agencies such as the US Office of Personnel Management.
The International Code Council should adopt P 43-15, following the examples set by Austin, TX; Santa Fe, NM, Washington, DC; and a number of other cities that now require single-user restrooms to be inclusive of all genders. Taking this important step will reduce wait times for everyone. Many people have been in the frustrating position of waiting in line for a single-stall restroom while the restroom designated for the other gender sits empty. In establishments that have two single-user restrooms, making those restrooms inclusive of all genders will double the options for everyone. This proposal will also make single-user restrooms more accessible to parents with a young child of a different gender as well as people with disabilities who have an attendant of another gender.

This proposal will also make single-user restrooms safer and more welcoming for many gay, lesbian, bisexual, and transgender people. People who do not fit traditional ideas of gender are often harassed or even assaulted simply for being in what other people incorrectly assume is the "wrong" restroom. Many gender nonconforming people are seen as both too feminine for the men's room and too

masculine for the women's room. Adopting this proposal would help many people avoid that kind of harassment by increasing access to gender neutral restrooms for those who need them.

Additionally, as more and more local governments around the country enact policies like this one, the International Code Council risks being unresponsive to the public welfare, which could undermine the ICC's broader purpose of providing a model code for state governments that reflects the current best practices in construction and public accommodations. There is simply no reason that single-user restrooms should be labeled by sex. Please vote yes on P 43-15.

Bibliography:

A Guide to Restroom Access for Transgender Workers, US Occupational Safety and Health Administration (2015).

https://www.osha.gov/Publications/OSHA3795.pdf

Guidance Regarding the Employment of Transgender Individuals in the Federal Workplace, US Office of Personnel Management (updated 2015).

https://www.opm.gov/policy-data-oversight/diversity-and-inclusion/reference-materials/gender-identity-guidance/

Public Comment 4:

Proponent : Amanda Goad, representing self (amandacgoad@gmail.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

403.2.2 ~~Single-stall~~ Single-user toilet facilities *No change to text.*

Commenter's Reason: This proposal seeks to improve timely access to restroom facilities for all members of the public, including but not limited to those whose gender does not match the traditional restroom signage. It is important for the Code to stop dictating the designation of single-user toilet facilities as exclusively "male" or "female," as this unnecessarily creates awkwardness for children and adults requiring the assistance of a caregiver in the restroom, as well as for people whose gender does not neatly fit either "male" or "female." Various localities and institutions have already, successfully adopted analogous codes and policies. Adopting the core of this proposal (403.2(4)) would have substantial benefits for the public.
Based on the Committee's response to the initial proposal, it appears that the wording of the proposal at section 403.2.2 should be changed to clarify that it refers to "single user toilet rooms," which typically do not contain separate "stalls" or compartments.

Amanda Goad, Esq.

Los Angeles, CA, USA

P44-15
403.2 (IBC 2902.2)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

403.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile and business*occupancies* in which the maximum occupant load is ~~100~~ 50 or fewer.

Reason: It has been long standing practice in the codes to group business and mercantile occupancies in regards to plumbing fixtures. It was not clear why the number was changed from 50 to 100 in the 2012 IPC for mercantile with the IBC occupant load remaining the same. These revisions are made to allow for small business occupancies to provide a single toilet facility for up to 50 occupants and reduce the number to the previous value of 50 for mercantile occupancies.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 98.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, for mercantile occupancies having an occupant load of greater than 50 and less than 101, separate toilet facilities (for male and female) will be required whereas in the current code that range does not require separate facilities. Extra space and duplicate fixtures, piping and associated materials and labor will increase the cost of construction for those mercantile establishments in that range.

P44-15 : 403.2-SNYDER3937

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There is no real technical justification to change mercantile back to 50 when it was just changed to 100 in the 2012 edition. A 100 person occupant load is a 6000 square foot tenant space which is still fairly small as far as typical mercantile tenant spaces are today. Requiring separate male/female toilet rooms for those spaces would be a undue hardship.

Assembly Motion: As Submitted

Online Vote Results: Failed

Support: 47.4% (73) Oppose: 52.6% (81)

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

403.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile ~~and business~~ *occupancies* in which the maximum occupant load is ~~50~~ 100 or fewer.
4. Separate facilities shall not be required in business *occupancies* in which the maximum occupant load is 25 or fewer.

Commenter's Reason: The main intent of the orginal proposal was to address business occupancies. Therefore, this public comment returns Item 3 to what is currently in the code and adds a new Item 4 to cover business occupancies only. The toilet facility arrangments in some small business tenant spaces have male and female toilet rooms on opposite ends of the tenant space, typically creating unecessary travel from the employee work area for one of the sexes. Labeling the toilet facilities (for each sex) is uncesssary in this type of small business environment.

P44-15

P47-15
404.1.1 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Add new text as follows:

404.1.1 Clustered family-or-assisted-use toilet facilities. Where multiple family-or-assisted-use toilet facilities are clustered at a single location, not less than 50 percent of the cluster of toilet facilities shall be required to be accessible.

Reason: IBC Section 1109.2 Exception 2 allow for single occupant toilet rooms that are clustered and of the same type to only have 50% constructed accessible. Since the family or assisted-use toilet room requirements basically describe an accessible single occupant bathroom, the intent of the exception is to allow for the same exception to be applicable when someone uses the allowance in IPC Section 404.2.2. This would be consistent with the 2010 ADA Standard for Accessible Design.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is CTC/PMG Proposal Item 1.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Acccessiblity. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P47-15 : 404.1.1 (New)-SNYDER3938

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Assisted accessible bathrooms do not include assistance. If you have assistance, it falls outside of accessibility.

Assembly Action : None

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Committee (PMGCAC@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: The original proposal reason statement is still valid. The following example illustrates the advantages of having this new langauge in the code: A building (or tenant space) requires (according to Table 403.1) two water closets for males and two water closets for females. The building designer decides that the best use of space is to do this with 4 single user toilet rooms, two labeled MALE and two labeled FEMALE, all in the same location (clustered). The basic understanding of many plans examiners and code officials is to require that the fixtures in each one of these single user toilet facilities be designed for accessibility becuase of their basic knowledge that "not less less than one fixture of each type in each toilet facility must be of accessible design". However, the IBC (Section 1109.2) and beginning with the 2010 ADA, recognize that where multiple single user toilet facilties are in a cluster (as this example illustrates), only 50% of those clustered toilet faciities are required to be of accessible design. This allowance results in a space and cost savings for two single user toilet facilities (one each per sex) to be of "standard" design because of less square footage, use of standard plumbing fixtures and grab bars not needed. The plumbing code does not need to be requiring toilet facilities of accessible design where the accessible design community does not require such facilities to be provided.

P47-15

P53-15 Part I

405.8, 1002.2

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART II IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART I.

2015 International Plumbing Code

Revise as follows:

405.8 Slip joint connections. Slip joints connections shall be installed only for tubular waste piping and only between the outlet of a fixture and the connection to the drainage piping. Slip joint connections shall be made with an *approved*~~elastomeric~~ sealing gasket~~ and shall only be installed on the trap outlet, trap inlet and within the trap seal~~. ~~Fixtures with concealed slip-joint~~ Slip joint connections shall be provided with access. Such access shall provide an ~~*access* panel or utility space~~ opening that is not less than 12 inches (~~305 mm~~ 305mm) in its smallest dimension~~ or other *approved* arrangement so as to provide *access* to the slip joint connections for inspection and repair~~.

1002.2 Design of traps. Fixture traps shall be self-scouring. Fixture traps shall not have interior partitions, except where such traps are integral with the fixture or where such traps are constructed of an *approved* material that is resistant to corrosion and degradation. ~~Slip joints~~ Traps having slip joint connections shall ~~be made~~ comply with ~~an *approved* elastomeric gasket and shall be installed only on the trap inlet, trap outlet and within the trap seal.~~ Section 405.8.

Reason: From the existing wording of this section, some inspectors have the misconception that the code doesn't allow slip joints to be installed upstream of a trap inlet nor at the connection of the trap "arm" to the drainage piping. For example, consider a typical lavatory where the drainage piping in the wall was roughed in at a fairly low elevation and the tailpiece from the fixture outlet is not very long. Normally, a slip joint end, tubular waste extension piece is installed to make the connection to the end of the fixture tailpiece to the inlet of the trap. However, if the existing wording is read literally, the code doesn't allow a slip joint above the trap inlet: *only at the trap inlet, outlet and within the trap seal*. Although it would be ideal to have the rough-in elevation of the drain in the wall "coordinate" with the elevation of the fixture outlet tailpiece piece, it is not realistic to make this happen every time. Sometimes the rough-in installer doesn't know the height of the cabinetry for the lavatory or the model of the drain assembly because neither have been chosen yet by the builder designer.
The revised wording allows for what is a common practice for fixture installation in the plumbing industry.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls

to discuss and debate the proposed changes. This is PMGCAC Item 1.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P53-15 Part I : 405.8-SNYDER6035

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: Approving this proposal would prohibit some types of bathtub waste assemblies as they use slip joints on other than tubular waste.

Assembly Motion: As Submitted
Online Vote Results: Failed
Support: 47.26% (69) Oppose: 52.74% (77)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Committee (PMGCAC@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: The Committee was swayed by inaccurate information given by opposition testimony. The revised wording does not change anything with regards to where *tubular waste* assemblies with slip joint connections have been commonly installed in all types of buildings for the past 50 years. Everyone in the plumbing industry should be well aquainted with the phrase "tubular waste" (see explanation at the bottom of this reason statement)

Tubular waste assemblies are commonly used for bathtub waste assemblies, whirlpool tub waste assemblies, bidet waste assemblies, lavatory waste assemblies and sink waste assemblies. This proposal does not limit where *tubular waste* assemblies can be installed, whether the connections are solid (solvent cemented or soldered) or slip-joint.

The PMGCAC believes that the inaccurate information is based on misreading and misunderstanding of the first sentence of Section 405.8:

> **405.8 Slip joint connections.** Slip joint connections shall be installed only for tubular waste piping and only between the outlet of a fixture and the connection to the drainage piping. ....

The first part of the sentence says slip joint connections are only appropriate for use on tubular waste piping. It does **not** say that slip-joint connections are the only type of connection that can be used for connecting tubular waste assemblies. The section

is about where slip joint connections can be used and the limitations for using those connections. This section is **not** about where tubular waste assemblies are allowed to be used. The code doesn't need a section on where tubular waste assemblies are allowed to be used because those locations are automatically driven by the design of the fixture outlet fittings (tub shoes, lav pop up assemblies, KS basket strainer assemblies, bidet drain assemblies.)

And while it should not be necessary to state the last half of the proposed sentence, there are some inspectors who believe that there cannot be a slip joint connection above the inlet of a trap. That *is* what the current code section literally says ! However, in a typical two-bowl kitchen sink with a combination tubular waste assembly, there are several slip joints "above the trap". The PMGCAC added the last half of the sentence to make it clear to everyone that slip joints are allowed at any point from the outlet of the fixture to where the tubular waste assembly connects to the *drain piping,* that being the piping that complies with one of the standards in Tables 702.1 (and the piping-appropriate fittings in Table 702.4)

Part II of this proposal for the IRC was approved by that committee. This proposal needs approval for consistency between the two plumbing codes.

What is meant by "tubular waste":

These components are made of either plastic or brass, with the tubing of these waste assemblies having an outside diameter of 1-1/4 or 1-1/2 inches. Although some tubular waste is solvent cemented (PVC or ABS plastic) or soldered (copper or brass) joints, the vast majority of *tubular waste* is installed with slip-joint connections.

P53-15 Part I

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

P53-15 Part II

P2704, P2704.1, P3201.1

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Residential Code

Revise as follows:

SECTION P2704
~~ACCESS TO~~ SLIP JOINT CONNECTIONS

P2704.1 ~~General~~ Slip joints. Slip joints connections shall be installed only for tubular waste piping and only between the trap outlet of a fixture and the connection to the drainage piping. Slip joint connections shall be made with an *approved* ~~elastomeric~~ sealing gasket ~~and shall be installed only on the trap outlet, trap inlet and within the trap seal~~. ~~Fixtures with concealed slip joint~~ Slip joint connections shall be ~~provided with~~ accessible. Such access shall provide an ~~access panel or utility space~~ opening that is not less than 12 inches (~~305 mm~~ 305mm) in its smallest dimension ~~or other *approved* arrangement so as to provide access to the slip connections for inspection and repair~~.

P3201.1 Design of traps. Traps shall be of standard design, shall have smooth uniform internal waterways, shall be self-cleaning and shall not have interior partitions except where integral with the fixture. Traps shall be constructed of lead, cast iron, copper or copper alloy or *approved* plastic. Copper or copper alloy traps shall be not less than No. 20 gage (0.8 mm) thickness. Solid connections, slip joints and couplings shall be permitted to be used on the trap inlet, trap outlet, or within the trap seal. ~~Slip joints~~ Trap having slip joint connections shall ~~be accessible.~~ comply with Section P2704.1.

Reason: From the existing wording of this section, some inspectors have the misconception that the code doesn't allow slip joints to be installed upstream of a trap inlet nor at the connection of the trap "arm" to the drainage piping. For example, consider a typical lavatory where the drainage piping in the wall was roughed in at a fairly low elevation and the tailpiece from the fixture outlet is not very long. Normally, a slip joint end, tubular waste extension piece is installed to make the connection to the end of the fixture tailpiece to the inlet of the trap. However, if the existing wording is read literally, the code doesn't allow a slip joint above the trap inlet: *only at the trap inlet, outlet and within the trap seal*. Although it would be ideal to have the rough-in elevation of the drain in the wall "coordinate" with the elevation of the fixture outlet tailpiece piece, it is not realistic to make this happen every time. Sometimes the rough-in installer doesn't know the height of the cabinetry for the lavatory or the model of the drain assembly because neither have been chosen yet by the builder designer.
The revised wording allows for what is a common practice for fixture installation in the plumbing industry.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International

Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 1.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P53-15 Part II : P2704-SNYDER6036

Public Hearing Results

Part II

Committee Action: Approved as Submitted

Committee Reason: The committee agreed with the proponent's published reason statement.

Assembly Action : None

P55-15 Part I

407.2

Proposed Change as Submitted

Proponent : Julius Ballanco, representing Self (JBENGINEER@aol.com)

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART II IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART I.

2015 International Plumbing Code

Revise as follows:

407.2 Bathtub waste outlets and overflows. Bathtubs shall be equipped with a waste outlet ~~and an overflow outlet. The outlets shall be connected to waste tubing or piping~~ not less than $1^1/_2$ inches (38 mm) in diameter. The waste outlet shall be equipped with a water-tight stopper. Where an overflow is installed on a bathtub, the overflow shall be not less than 1-1/2 inches (38 mm) in diameter.

Reason: The Code is currently not coordinated with the referenced standards. The standards listed in Table 2701.1 do not require an overflow. An overflow is an optional connection for a bathtub. The reason the standard removed the mandate for overflows is because they cannot be properly cleaned. Furthermore, they are rarely if ever used, which is the only way to clean the overflow. Without proper cleaning, there is a build-up of contaminants in the overflow.
As the code currently reads, it prohibits certain tubs because they do not have an overflow. However, Table 2701.1 allows these tubs.

The national consensus product standard should be the document that regulates the construction requirements of a bathtub.

Cost Impact: Will not increase the cost of construction
This will decrease the cost of construction by not requiring an overflow for every bathtub.

P55-15 Part I : 407.2-BALLANCO6056

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: The standard for bathtubs is in the process of the being revised to be more clear on this issue. Until the revision is complete, the code should not be revised.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: Part 2 of this change was recommended for approval. For consistency, Part 1 should also be approved. The reason given for denial in not valid. The comment during testimony was that the standard is in the process of being clarified to require overflows. That is incorrect. The standard may have a change proposed to mandate overflows for bathtubs, but at the current time such a mandate in not found in the standard. Furthermore, any change would have to go through the consensus process. There is no determining how such a change would fair during the consensus review.

Manufacturers are producing high end bathtubs without an overflow. The worse thing to happen would be to drill a hole in the field on these high end fixtures to install an overflow.

If the standard ever is changed, a change can be proposed to mandate overflows. However, until such change is proposed, the code should not mandate overflows.

P55-15 Part I

P55-15 Part II

P2713.1

Proposed Change as Submitted

Proponent : Julius Ballanco, representing Self (JBENGINEER@aol.com)

2015 International Residential Code

Revise as follows:

P2713.1 Bathtub waste outlets and overflows. Bathtubs shall be equipped with a waste outlet ~~and an overflow outlet. The outlets shall be connected to waste tubing or piping~~ that is not less than $1^1/_2$ inches (38 mm) in diameter. The waste outlet shall be equipped with a water-tight stopper. Where an overflow is installed, the overflow shall be not less than $1^1/_2$ inches (38 mm) in diameter.

Reason: The Code is currently not coordinated with the referenced standards. The standards listed in Table 2701.1 do not require an overflow. An overflow is an optional connection for a bathtub. The reason the standard removed the mandate for overflows is because they cannot be properly cleaned. Furthermore, they are rarely if ever used, which is the only way to clean the overflow. Without proper cleaning, there is a build-up of contaminants in the overflow.
As the code currently reads, it prohibits certain tubs because they do not have an overflow. However, Table 2701.1 allows these tubs.

The national consensus product standard should be the document that regulates the construction requirements of a bathtub.

Cost Impact: Will not increase the cost of construction
This will decrease the cost of construction by not requiring an overflow for every bathtub.

P55-15 Part II : P2713.1-BALLANCO6057

Public Hearing Results

Part II

Committee Action: Approved as Submitted

Committee Reason: Tubs are being sold without overflow openings. The code should not be requiring plumbers to be drilling holes in tubs in the field in order to comply with the code.

Assembly Action : None

P59-15
410.2 (IBC 2902.6)

Proposed Change as Submitted

Proponent : Stephen DiGiovanni, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Plumbing Code

Revise as follows:

410.2 Small occupancies. Drinking fountains shall not be required for an occupant load of ~~15~~ 30 or fewer.

Reason: IPC Section 410.2 (IBC Section 2902.6) is revised to increase the occupant load up to 30 for those small occupancies where drinking fountains are not required. The increase in the occupant load for both drinking fountains and service sinks would provide a favorable code limitation to very small occupancies and a decrease in cost to small business owners. Real occupancy of spaces and the calculated occupant loads may differ to the point where the requirements of the current code may be too stringent.

Cost Impact: Will not increase the cost of construction
This proposal will result in a less stringent code requirement, and therefore would presumably lower the cost of construction.

P59-15 : 410.2-DIGIOVANNI4738

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The requested increase to thirty is arbitrary. The current threshold of 15 is not overly conservative.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: It is interesting that the Committee denied this change because the value for fixture requirements is arbitrary. Actually every value for minimum number of fixtures is arbitrary. They move up and down based on field experience. The proponent has a valid reason for the change in the number of fixtures required.

Public Comment 2:

Proponent : Kevin McOsker, representing Southern Nevada Chapter of ICC (ktm@ClarkCountyNV.gov) requests Approve as Submitted.

Commenter's Reason: The small occupancy trigger established in 410.2 with respect to drinking fountains is based on the egress requirements in Chapter 10. The occupant load factors, are, and should be, relatively conservative to ensure safe egress requirements. This conservative approach for the egress requirements results in very small building areas where drinking fountains are required. The chart below addresses various occupancy types, occupant load factors and comparison of areas where drinking fountains are required in the current code and based on this code change proposal. This code change allows larger building areas to be exempt from the requirement of a drinking fountain. It should be noted, the actual occupant load of building area is often less than the stated occupant load, resulting in the requirement for a drinking fountain for relatively few people.

Occupancy	Occupant Load Factor (OLF) (ft^2/
Assembly (unconcentrated)	15
Day Care	30
Mercantile	60
Industrial/Business	100
Residential	200
Storage	300

P59-15

P60-15
410.2 (IBC 2902.6)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

410.2 Small occupancies. Drinking fountains shall not be required for an occupant load of ~~15~~ 50 or fewer.

Reason: The following is provided as support that drinking fountains for smaller occupancies are just not needed as evidenced by the experience (two code cycles) in one of the hottest and driest areas of the country.
As many should know, the climate in Phoenix, Arizona is HOT and DRY. The following Wikipedia quote sums up the general facts:

Phoenix has a subtropical desert climate, typical of the Sonoran Desert in which it lies. Phoenix has extremely hot summers and warm winters. The average summer high temperatures are some of the hottest of any major city in the United States, and approach those of cities such as Riyadh and Baghdad.[60] On average (1981–2010), there are 107 days annually with a high of at least 100 °F (38 °C),[61] including most days from late May through early October. Highs top 110 °F (43 °C) an average of 18 days during the year[62] Every day from June 10 through August 24, 1993, the temperature in Phoenix reached 100 °F or more, the longest continuous number of days (76) in the city's history. Officially, the number of days with a high of at least 100 °F has historically ranged from 48 in 1913 to 143 in 1989. For comparison, since 1870, New York City has seen a temperature of 100 degrees or more a total of only 59 days.[63] On June 26, 1990, the temperature reached an all-time recorded high of 122 °F (50 °C).[64]

60. "Collier Center". Collier Center of Phoenix. RetrievedSeptember 12, 2012.

61. "NowData - NOAA Online Weather Data". National Oceanic and Atmospheric Administration.

Retrieved 2011-12-18.

62. "Climatology of heat in the southwest". National Weather Service. Retrieved January 6, 2009.

63. NWS Upton, NY. Retrieved 2014-05-24

64. Dorish, Joe. "10 All-Time Hottest Weather Temperature Days in Phoenix". Knoji. Retrieved February 5, 2014.

Another source indicates the average relative humidity is second to the lowest in the nation with Las Vegas having the lowest. Here's a typical year for Morning (M) and Afternoon (A) Relative Humidities in Phoenix:

JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC	
M	A	M	A	M	A	M	A	M	A	M	A	M	A	M	A	M	A	M	A	M	A	M	A
67	33	60	27	57	24	43	16	35	13	31	12	44	20	51	23	49	23	50	22	57	27	67	34

Our mouths are parched just thinking about those afternoon conditions!

The City of Phoenix has always believed that the threshold of 15 occupants for not requiring drinking fountains was far too low such that it created a significant waste of building space for smaller buildings and tenant spaces. Phoenix made the decision two code cycles ago to raise the threshold to 50. In the 8 plus years of this

new threshold in place for new and renovated buildings in Phoenix, there have not been any complaints about not having drinking fountains in smaller establishments. Not one.

It is believed that the low threshold is unwarranted for the remainder of the United States as those areas are not nearly as hot or dry as Phoenix.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This PMGCAC Item 97.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P60-15 : 410.2-SNYDER3947

Public Hearing Results

Committee Action: Disapproved

Committee Reason: A threshold of 50 seems to be an arbitrary number. People need free access to water. Allowing 15 people not have access to water is one thing but 50 seems to be excessive number of people to have to go without water.

Assembly Motion: As Submitted
Online Vote Results: Failed
Support: 40.38% (63) Oppose: 59.62% (93)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Code Action Committee (PMGCAC@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: The reason statement in the proposal provides more than enough evidence that not installing of drinking fountains in small occupancies is not a problem in one of the hottest and driest climates in this country.

History on where the 15 person threshold came from:

The 15 person threshold was introduced into the 2009 IPC through proposal P17-07/08. That proposal originally requested a threshold of 50, based simply on the requirement for where separate (male/female) toilet facilites were needed for mercantile occupancies (at that time, the separate facilities requirement for mercantile was at 50 persons.) The Committee disapproved the proposal saying that they *wanted* all buildings and spaces to have free water (but provided no

technical reason as to why that was necessary for every building and tenant space, no matter how small). The proponent submitted a public comment asking the Voters for a reduced threshold of 15 of fewer persons, that number based on "matching" the threshold for where separate toilet facilities were not required for any building or space. The proposal, as modified by that public comment, was successful.

Note that proposal P17-07/08 was submitted by the Utah ICC Chapter (based in Salt Lake City). Salt Lake City is dry and hot (nearly 100F some days) during the summer months. Yet those Utah code officials felt, at that time, that 50 persons was a reasonable and appropriate threshold to propose.

In this code cycle, the Committee first acted on an As-Submitted motion which was defeated by only 8 to 6. An Assembly Motion for putting As-Submitted on the Public Comment agenda was acted upon by Online Voters and was defeated 93 to 63. Clearly, there is a significant portion of people who believe that the 50 person threshold is not too high.

Change is difficult. However, to stay with a current code requirement that was not based on *any* data is difficult to swallow when data now exists and many code officials are being challenged about the increase in construction costs, especially for smaller spaces, that newer code editions often create. This is a reasonable opportunity to offset those increased costs that are much more important in the the bigger picture.

Consider the following:

The landscape of drinking water sources has been evolving and significantly so in the last 5 years. Many of today's projects are focused on turning large existing buildings into usable tenant spaces of "small" areas.

Major renovation of any building or tenant space is costing more than ever these days. This is especially true for spaces having an occupant load of less than 50. "One" drinking fountain in and of itself, doesn't appear to take up much space but the requirement for one drinking fountain requires, for accessibility compliance, that two drinking fountains be installed: one for standing persons and one for wheelchair-seated persons. As these drinking fountains are accessible fixtures, an accessible route is required. ICC/ANSI A117.1 (currently at the 2009 edition), no longer allows "parallel access" to a drinking fountain and does not allow drinking fountains located in an alcove. Thus, the presence of drinking fountains requires a significant amount of space that could be used for more benefical purposes in these small tenant spaces and buildings. In most cases, these fixtures will not ever be used (the following paragraph explains further). It has also been found that after final inspection, some small business offices simply remove the drinking fountain(s) and locate the copy machine in its place. There is anecdotal stories of plumbing contractors "renting" the same drinking fountains for final inspection compliance and removing them later at the owners requent. That is just how *not* valuable these fixtures are for small occupancies.

As unfortunate as it may be, much of the public currently has some distrust of tap water. That coupled with many frequently found undesirable aspects of using drinking fountains such as water streams not high enough off the bubbler, the potential for slobber and spit on a bubbler and generally unclean conditions most of the time, cause people to avoid drinking fountains. They would much rather buy water or bring water with them. Thus, drinking fountains are not being used at the frequency that they once were decades ago. This is not to say that people are not drinking less water than they used to. They are just being much more selective in how they obtain drinking water. And drinking fountains are low on the list of sources.

When this code is published in 2018, many jurisdications will not be adopting that edition until many years afterwards. The time is now to once again, consider a change in the code that makes a bold step, similar to what the Final Action voters did in 2008, against what the Committee said they *wanted* (no threshold at all). The 15

person threshold had no real basis. Now there is hard evidence that the 50-person threshold is satisfactory in the hottest of climates. The code body has changed other plumbing fixture requirement ratios based on hard data presented. The hard data for drinking fountains has now been provided.

The PMGCAC urges approval of this proposal.

P60-15

P63-15

411.3 (New), Chapter 14

Proposed Change as Submitted

Proponent : Billy Smith, American Society of Plumbing Engineers Legislative Committee, representing American Society of Plumbing Engineers Legislative Committee (bsmith@aspe.org)

2015 International Plumbing Code

Add new text as follows:

411.3 **Water supply.** The temperature of the water supply to an emergency shower or eyewash station shall only be controlled by a temperature actuated mixing valve complying with ASSE 1071.

Add new standard(s) as follows:
ASSE 1071 - 2012 Performance Requirements for Temperature Actuated Mixing Valves for Plumbed Emergency Equipment

Reason: The temperature of the water to emergency fixtures is regulated by ASSE 1071 devices. These devices raise the temperature of the cold water by the introduction of hot water. The cold water flows freely through the device. This feature is imperative to prevent the water supply to an emergency fixture from shutting off. The most important requirement of an emergency fixture is the constant flow of high volumes of water.
Without this code requirement, the water supply could be regulated with an ASSE 1070 device. This would be dangerous in that such a device could shut off the flow of water if there is a loss of either hot or cold water. By listing that the "only" means of protection is an ASSE 1071 device, no other mixing valve can be used.

The use of these devices is also consistent with the OSHA requirements for emergency fixtures.

Cost Impact: Will not increase the cost of construction
This merely adds the proper reference to the thermostatic mixing valve required for an emergency shower.
This is already a requirement of OSHA.

Analysis: A review of the standard proposed for inclusion in the code, ASSE 1071, with regard to the ICC criteria for referenced
standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P63-15 : 411.3 (New)-SMITH5398

Public Hearing Results

Committee Action: **Approved as Modified**

Modification:

411.3 Water supply. ~~The temperature of the~~ Where hot and cold water ~~supply~~ is supplied to an emergency shower or eyewash station the temperature of the water supply shall only be controlled by a temperature actuated mixing valve complying with ASSE 1071.

Committee Reason:

For the Modification only:

The correct water temperature to a safety shower can be supplied by mixed hot and cold water supply, storage tanks or tanklesswater heaters. Only where hot and cold water supplies are mixed is there a need for a mixing valve.

For the proposal As Modified:

The committee agreed with the proponent's published reason statement.

Assembly Motion: **Disapprove**

Online Vote Results: **Successful**

Support: 52.94% (81) Oppose: 47.06% (72)

Assembly Action : **Disapproved**

Analysis. For staff analysis of the content of ASSE 1071 - 2012 with regard to the ICC criteria for referenced standards (Section 3.6 of CP #28), please visit: http://www.iccsafe.org/wp-content/uploads/2015-Proposed-Standards-Group-A-Final.pdf

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Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Modified by Committee.

Commenter's Reason: The reason presented for the floor motion was that the opponents to the change were unsure as to whether their concerns were addressed by the modification. In fact, the modification did address their concerns. An ASSE 1071 device is only required when hot and cold water are supplied to the emergency fixture. There are many emergency fixtures that have a single source of water supply, that being water that is tempered (by some controlled heating source) to meet the requirements of the emergency fixture. Since the modification allows the single pipe installations without an ASSE 1071 device, this change must be approved.

Without this change, it is possible that someone could install an ASSE 1017 or ASSE 1070 device for tempering the water. These are the wrong types of valve since they do not allow the uninterrupted flow of water. Both devices could close of the flow of water if tempering is not possible. An ASSE 1071 device allows the free flow of cold water adding hot water to temper the cold water.

Public Comment 2:

Proponent : Ronald George, representing Self (Ron@Plumb-TechLLC.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

411.3 Water supply. The temperature of the water ~~supply~~ supplied to an emergency shower or eyewash station shall ~~only~~ not exceed 100 ^{o}F (37.8 ^{o}C) and shall be controlled by a temperature actuated mixing valve complying with ASSE 1071.

Commenter's Reason: The maximum tempoerature supplied to emergency fixtures that can be used for flushing the eyes shaoud be limited to 100 Degrees Fahrenheit. Temperatures in excess of 100 degees fahrenheit for the require fluid flushing time period in the ISEA/ANSI Z358.1 standard can cause eye damage if the temperatures exceed 100 degrees Fahrenheit. This temperature is a recommendation in the appendix of the standard, but it is not enforceable there. This languge allows the inspector to verify that the mixing valve is set to limit the temperature to less than 100 F.

Public Comment 3:

Proponent : Assembly Action

requests Disapprove.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Disapprove was successful by a vote of 52.94% (81) to 47.06% (72) by eligible members online during the period of May 14 - May 28, 2015.

Public Comment 4:

Proponent : Misty Guard, Bradley Corporation, representing Bradley Corporation requests Disapprove.

Commenter's Reason:

- 1) The code language will make it hard to enforce by code officials. "Only" and the phrase "thermostatic mixing valve" are too prescriptive for the code and not reflective of current technologies and design options available on the market, which will slow down innovation, prevent a competitive market for alternative technologies, and application of new technologies.
    - a) There are other technologies, such as electronic mixing valves and steam mixing valves, that can be used to achieve tepid water where hot and cold water is supplied for emergency eyewash and shower equipment.
    - b) Recirculation Loop Systems do not require a TMV at every emergency shower and eyewash station. A water

heater (storage tank or instantaneous) feeds a single TMV and distributes the blended water out to the entire system, often comprised of 3 or more emergency shower(s) or eyewash station(s).

- 2) The code language may be misinterpreted by building owners and architectural firms, which will lead to limited design options used in buildings/facilities.
    - a) "Where hot and cold water is supplied" implies that plumbed hot and cold water is required to be provided to emergency shower(s) or eyewash station(s), which prevents the use of the following technologies:
        - i) Tankless instantaneous water heaters, that use only a cold plumbed line
        - ii) Self-contained immersion heater systems and self-contained gravity-fed systems that do not use plumbed lines
        - iii) Recirculation loop systems that do not use a TMV at every emergency shower or eyewash station fixture.

- 3) Other industry technologies safely perform and meet the intent of ASSE 1071, Sections 1.2.3 to 1.2.7. In fact, certain industry technologies contain higher levels of protections than ASSE 1071 valves.
    - a) Instantaneous tankless water heaters prevent scalding with three separate thermostatic safety controls. In addition to outlet temperature monitoring, inlet temperature is monitored, which is not performed by ASSE 1071 valves.

- 4) The code language deviates from the referenced standard ISEA Z358.1, which will make it hard to enforce by code officials.
    - a) ISEA Z358.1 focuses on the performance of emergency eyewash and shower equipment to provide tepid water (60 to 100°F). The ISEA Z358.1 standard is intentionally silent on the mechanisms by which tepid water is achieved to allow for design innovations and to ensure freedom of choice based on individual building/project needs.
    - b) Z358.1 Sections 4.5.6, 5.4.6, 6.4.6, 7.4.5, and 8.2.3.4 state: "Deliver tepid flushing fluid. In circumstances where

chemical reaction is accelerated by flushing fluid temperature, a facilities safety/health advisor should be consulted for the optimum temperature for each application."

- c) IPC § 411.1 Approval states: Emergency showers and eyewash stations shall conform to ISEA Z358.1.
    - The addition of § 411.3 prohibits the use of other means to achieve tepid water. Therefore, alternative technologies and design options that comply with ISEA Z358.1 may not be allowed in jurisdictions utilizing the IPC.

- 5) The focus of the ISEA Z358.1 standard is for emergency shower and eyewash equipment be made available to all employees at risk for exposure to injurious materials and chemicals. Limiting design options may have unintended consequences.
    - a) Customizable solutions that are able to fit the constraints of any building/facility is core to the industry and reflective in the multitude of design options available. Limiting the choice of customizable solutions for different infrastructure needs may drive building owners/employers away from providing emergency eyewash and shower equipment, which puts employees at risk if adequate/flushing facilities are not available.

- 6) OSHA does not require the use of a temperature actuated mixing valve, nor an ASSE 1071 valve. Emergency Fixtures are classified according to OSHA 1910.151(c) – Medical and First Aid, which states: "Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use."

Bibliography:

1. International Safety Equipment Association. ANSI/ISEA Z358.1: American National Standard for Emergency Eyewash and Shower Equipment (2014). Arlington, VA.
2. ASSE International. ASSE 1071: Performance Requirements for Temperature Actuated Mixing Valves for Plumbed Emergency

Equipment (2012). Mokena, IL.
3. US Department of Labor. Part 1910: Occupational Safety and Health Standards, Subpart K: Medical and First Aid, Section 151: Medical Services and First Aid. (2015). U.S.: Electronic Code of Federal Regulations.

Public Comment 5:

Proponent : Gary Klein, Gary Klein and Associates, representing Self (gary@garykleinassociates.com) requests Disapprove.

Commenter's Reason: While the Committee Modification is an improvement on the original proposal, neither is needed at this time in the IPC. I urge disapproval this cycle and ask that the proponents work with the emergency shower and eyewash station industry to come up with more complete wording for the next cycle.

Public Comment 6:

Proponent : Matt Sigler, Plumbing Manufacturers International, representing Plumbing Manufacturers International requests Disapprove.

Commenter's Reason: This proposal does not reflect other technologies and design options that are available and used throughout the industry (i.e. electronic mixing valves, steam mixing valves, instanteous tankless water heaters, etc.). Furthermore, this proposal is not consistent with ISEA Z358.1, which is referenced in Section 411.1 of the IPC, which does not prescribe specific equipment or devices to be used to provide tepid water, but instead focuses on the performance of emergency eyewash and shower equipment which allows for various options based on project needs.

P63-15

P66-15

202 (New), 418.4 (New)

Proposed Change as Submitted

Proponent : Ronald George, Self; Plumb-Tech Design & Consulting Services LLC; www.Plumb-TechLLC.com; www.ScaldPrevention.org, representing Self; Plumb-Tech Design & Consulting Services LLC (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Add new definition as follows:

SECTION 202 DEFINITIONS

SCALD HAZARD A condition where the discharge of high temperature hot water from a plumbing fixture can cause serious burn injuries.

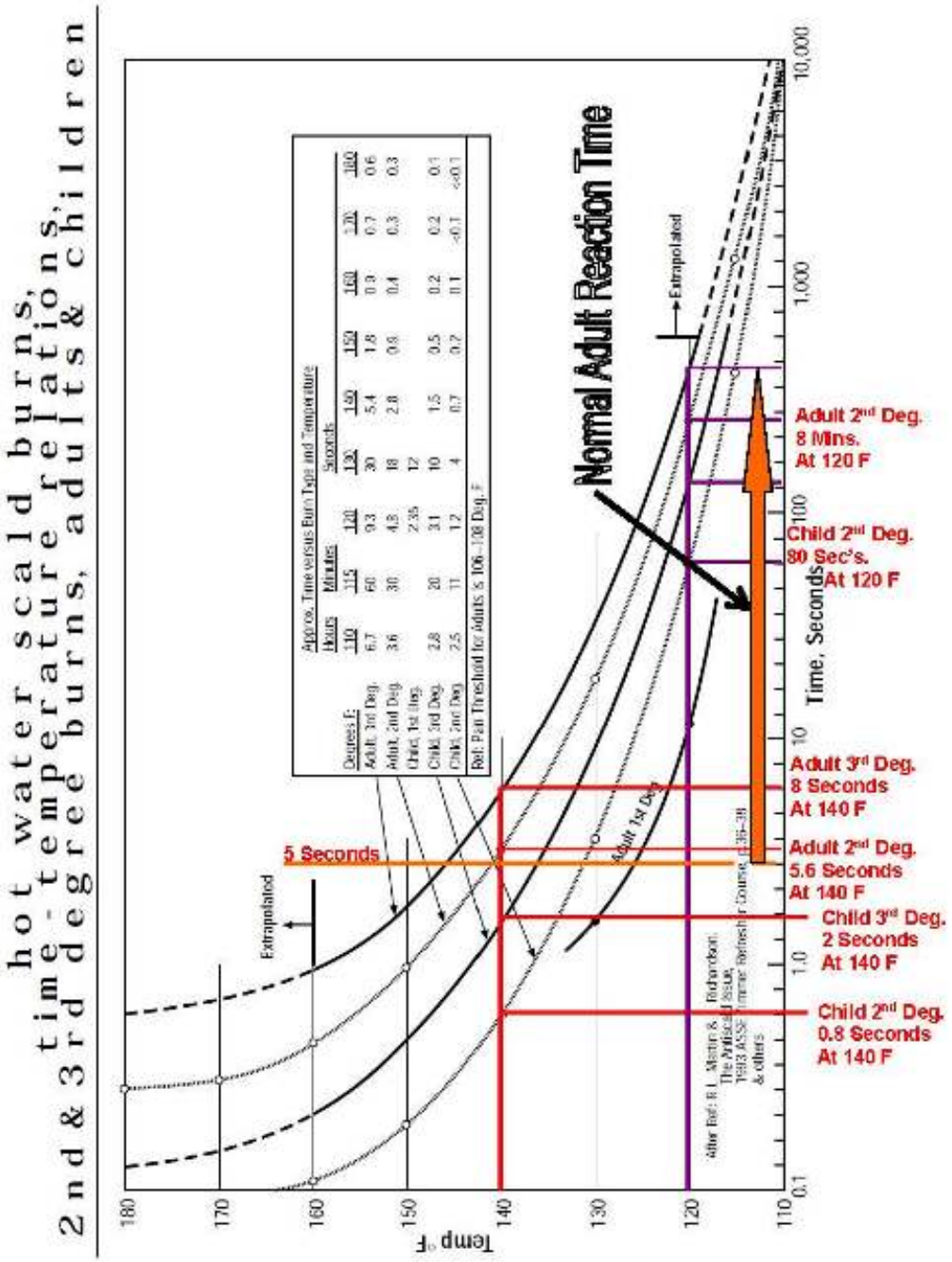
Add new text as follows:

418.4 Hot water temperature limits at sinks. To provide for the reduction of scald hazards for people, including the elderly, persons with physical disabilities and children, using public or private sinks where *hot water* is supplied to sink faucets, the water discharged to the sink shall flow through one or more of the following:

1. A device conforming to ASSE 1017.
2. A device conforming to ASSE 1070.
3. A device conforming to ASSE 1062.
4. A faucet having an integral, field-adjustable limit-stop that can be adjusted from 110°F (43.3°C) to 135°F (57.2°C).

Adjustable devices and limit-stop-equipped faucets shall be set at a faucet discharge water temperature, as determined by the building owner, that protects the intended users provided that the setting does not result in a water temperature exceeding 135°F (57.2°C). Non-adjustable devices complying with ASSE 1062 shall significantly reduce flow from the faucet when discharge water temperatures exceed 115°F (46.1°C).

Reason: This code change is intended to provide scald protection at sinks and it offers several options for controls. The code change is intended to allow limitation and adjustment of the hot water temperature to prevent scald injuries to children, elderly or handicapped persons when they are present in a facility.



A Seminar and Technical Paper for the 25-28 Oct. 98 Annual ASPE Meeting at the Indianapolis Convention Center in Indianapolis, Indiana. Reprinted by Watts Regulator Company with permission of Dr. D. Bynum Jr.

Figure 1 – Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children.
(Notes By: Ron George, CPD, See: www.ScaldPrevention.org)

Bibliography: www.ScaldPrevention.org

Cost Impact: Will increase the cost of construction
The cost for a faucet with a limit stop or an ASSE 1062 device (TAFR) is minimal for the ability to limit the hot water in a home, apartment or hotel room where children, the elderly or handicapped persons may be injured using the fixture. This code change gives several options to comply without spending too much for safety.

P66-15 : 418.4 (New)-

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposed language applies to all sinks but that is not the intent of the proponent's published reason statement.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Ronald George, representing Self requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

418.4 Hot water temperature limits at sinks. ~~To provide for the reduction of scald hazards for people, including the elderly, persons with physical disabilities and children, using public or private sinks where~~ Where*hot water* is supplied to sink faucets, the water discharged to the sink shall flow through one or more of the following:

1. A device conforming to ASSE 1017.
2. A device conforming to ASSE 1070.
3. A device conforming to ASSE 1062.
4. ~~A faucet having an integral, field-adjustable limit-stop that can be adjusted from 110°F (43.3°C) to 135°F (57.2°C).~~

~~Adjustable devices and limit-stop-equipped faucets shall be set at a faucet discharge water temperature, as determined by the building owner, that protects the intended users provided that the setting does not result in a water temperature exceeding 135°F (57.2°C). Non-adjustable devices complying with ASSE 1062 shall significantly reduce flow from the faucet when discharge water temperatures exceed 115°F (46.1°C).~~

Commenter's Reason: This modification provides the ability to limit temperatures at sinks and eliminates the confusion about children and the elderly.

P66-15

P77-15
424.3

Proposed Change as Submitted

Proponent : Julius Ballanco, representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

424.3 Individual shower valves. Individual shower and ~~tubshower~~ tub-shower combination valves shall be balanced-pressure, thermostatic or combination balanced-pressure/thermostatic valves that conform to the requirements of ASSE 1016/ ASME A112.1016/CSA B125.16 or ASME A112.18.1/CSA B125.1 and shall be installed at the point of use. ~~Shower and~~ The maximum temperature of water discharging from an individual shower or tub-shower combination ~~valves required by this section~~ valve shall be ~~equipped with a means to limit the maximum setting of the valve to~~ 120°F (49°C)~~, which~~ . The maximum discharge water temperature shall be ~~field adjusted in accordance with~~ limited by a temperature-actuated mixing valve conforming to ASSE 1017, ASSE 1070, or CSA B125.3, by a temperature-actuated, flow reduction device conforming to ASSE 1062 that is installed at every discharge outlet, or by the ~~manufacturer's instructions. In-line thermostatic valves shall not be utilized for compliance with this section.~~ field adjustment and setting of the hot water temperature limit stop within the individual shower or tub-shower combination valve.

Reason: The plumbing engineering community has found it to be safer for large installations, such as hotels and motels, to limit the temperature of the hot water to shower valves and tub-shower combination valves. This avoids the need to adjust every shower valve.
The maximum temperature requirement is based on someone inadvertently turning the water to full hot. This was typically assumed to be a child. Hence, this limitation is not related to thermal shock. As such a thermostatic mixing valve can be used to accomplish this level of protection, including an ASSE 1017, ASSE 1070, or CSA B125.3 valve.

This change still permits the handle limit stop on the individual valve to be used to limit the temperature of the hot water.

The last sentence regarding in-line thermostatic mixing valves predates the change to ASME A112.18.1/CSA B125.1. It no longer has any meaning. Furthermore, with the allowance of a central thermostatic mixing valve to limit the temperature of the hot water, this sentence would only add confusion to the requirements.

Temperature actuated flow reduction devices are extremely effective in protecting users from high temperatures in a shower. The devices reduce the flow of water to a trickle, thus preventing water in excess of 120°F from hitting the bather. These devices meet the intent of the code requirement for limiting the maximum temperature of hot water.

Cost Impact: Will not increase the cost of construction
The change allows an option. Hence, there is no cost impact for options.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The ASSE 1017and ASSE 1070 valves are being misapplied for this point-of-use outlet.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: The Committee clearly did not understand the wording of this change. They concluded that an ASSE 1017 or ASSE 1070 was misapplied for controlling the maximum temperature of the hot water. This is not correct. Currently, engineers often add an ASSE 1017 device at the water heater to provide a level of safety with the temperature of the hot water. When these valves are set for a temperature below 120 degrees F, the handle limit stop does not have to be adjusted. That is what is being done today. If a measurement is made at the shower and the maximum temperature is below 120 degrees F, then it meets the code. Hence, this is merely clarifying what is already taking place.

Similarly, an ASSE 1070 device can be set up to control the flow of water to a maximum of 120 degrees F (or lower). Thus, the valve prevents the discharge of water above 120 degrees F. There is no reason for prohibiting an installer from using an ASSE 1070 device to control the maximum temperature.

The difference between this change and the change proposed by ASPE is that this change also allows the use of an ASSE 1062 device, which prevents the showerhead from flowing a stream of water when the temperature exceed 115 degrees F. These are effective valves for limiting the temperature of the hot water discharging from a shower. The Committee had no issue with this use of an ASSE 1062 device.

P80-15
424.3

Proposed Change as Submitted

Proponent : Billy Smith, American Society of Plumbing Engineering Legislative Committee, representing American Society of Plumbing Engineers Legislative Committee (bsmith@aspe.org)

2015 International Plumbing Code

Revise as follows:

424.3 Individual shower valves. ~~Individual~~ Point-of-use-controlled shower and ~~tubshower~~ tub-shower combination valves shall be balanced-pressure, thermostatic or combination balanced-pressure/thermostatic valves that conform to the requirements of ASSE 1016/ASME A112.1016/CSA B125.16 or ASME A112.18.1/CSA B125.1~~ and~~ . The temperature of water discharging from such valves shall ~~be installed at the point of use. Shower and tub-shower combination valves required by this section shall be equipped with a means to limit the maximum setting of the valve to~~ not exceed 120°F (49°C)~~, which~~ . The temperature shall be ~~field adjusted in accordance with~~ limited either by a temperature-actuated master mixing valve conforming to ASSE 1017, ASSE 1070, or CSA B125.3, or by the ~~manufacturer's instructions~~ limit stop integral to each point-of-use-controlled shower or tub-shower combination valve. ~~In-line thermostatic~~ Master mixing valves or integral limit stops, whichever serves as the temperature limiting means, shall ~~not~~ be ~~utilized for compliance with this section.~~ field-adjusted and set after the hot water distribution system is operational.

Reason: This change will recognize a common means of limiting the maximum temperature from a shower valve, which is a central thermostatic mixing valve. Plumbing engineers have used this method of design in many large installations, including high rise residential buildings, hotels, and motels. It is an effective means of preventing the temperature from rising above of 120°F. This also removes the possible problem with improperly adjusted individual shower valves.
Since the maximum temperature requirement is not a means of protecting against thermal shock, any thermostatic mixing valve can be used. There is no need for end point protection of shutting off the flow of water. This is still accomplished by the shower valve. Therefore, a thermostatic mixing valve can conform to ASSE 1017, ASSE 1070, or CSA B125.3 valve.

The individual valve handle limit stop can still be used to limit the maximum temperature of hot water. This is the common means of providing this level of protection in individual dwelling units.

The existing last sentence has been deleted since it adds confusion regarding the use of central thermostatic mixing valves for limiting the temperature of the hot water. The code requirements are complete without having this confusing last sentence.

Cost Impact: Will not increase the cost of construction
This does not increase the cost since the change merely provides options for the installer or designer.

P80-15 : 424.3-SMITH5386

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: Consistency with committee's action on P77-15.

Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: The Committee clearly did not understand the wording of this change. They concluded that an ASSE 1017 or ASSE 1070 was misapplied for controlling the maximum temperature of the hot water. This is not correct. Currently, engineers often add an ASSE 1017 device at the water heater to provide a level of safety with the temperature of the hot water. When these valves are set for a temperature below 120 degrees F, the handle limit stop does not have to be adjusted. That is what is being done today. If a measurement is made at the shower and the maximum temperature is below 120 degrees F, then it meets the code. Hence, this is merely clarifying what is already taking place.

Similarly, an ASSE 1070 device can be set up to control the flow of water to a maximum of 120 degrees F (or lower). Thus, the valve prevents the discharge of water above 120 degrees F. There is no reason for prohibiting an installer from using an ASSE 1070 device to control the maximum temperature.

P80-15

P82-15 Part I

424.5

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

424.5 Bathtub and whirlpool bathtub valves. The *hot water* supplied to bathtubs and whirlpool bathtubs shall be limited to a maximum temperature of 120°F (49°C) by a water-temperature limiting device that conforms to ASSE 1070 or CSA B125.3, except where such protection is otherwise provided by a combination tub/shower valve in accordance with Section 424.3. Access shall be provided to the ASSE 1070 or CSA B125.3 devices. Such access shall be large enough to enable removal of the device for replacement and for temperature adjustments.

Reason: Designers and installers don't think about these devices needing periodic adjustment, cleaning or replacement. Although it should be obvious that these devices should not be covered up without any way to get to them, this happens frequently, because, "the code doesn't make me do otherwise". This is loophole that needs to be eliminated so that these safety devices can be accessed.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 51.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, these valves might have to be located elsewhere where access can be made to the valve. This might involve a little more piping and labor. Or, at a minimum, an access panel might have to be installed in a wall or ceiling. As access wasn't required before, this extra work to provide access might increase the cost of construction in some situations.

P82-15 Part I : 424.5-SNYDER5919

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: The requirement for access is already required by the standard. The phrase "large enough" is too vague as to what is needed.

Assembly Motion: **As Submitted**
Online Vote Results: **Failed**
Support: 49.4% (83) Oppose: 50.6% (85)
Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: The variation in size and installation arrangement of these tempering valves makes is difficult to be more specific. The PMGCAC believes that the code official should be able to judge whether the access opening is sufficient for the purposes of maintenance and replacement. Without the code stating anything about access, many of these valves are covered over with permanent wall coverings. When problems with hot water supply to the tub occur, the service technician will not know the valve exists. And if he suspects one does exist, he will have no clue as to its location.

P82-15 Part I

P82-15 Part II

P2713.3

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Residential Code

Revise as follows:

P2713.3 Bathtub and whirlpool bathtub valves. Hot water supplied to bathtubs and whirlpool bathtubs shall be limited to a temperature of not greater than 120°F (49°C) by a water-temperature limiting device that conforms to ASSE 1070 or CSA B125.3, except where such protection is otherwise provided by a combination tub/shower valve in accordance with Section P2708.4. These ASSE 1070 or CSA B125.3 devices shall be accessible. Such access shall be large enough to enable removal of the device for replacement and for temperature adjustments.

Reason: Designers and installers don't think about these devices needing periodic adjustment, cleaning or replacement. Although it should be obvious that these devices should not be covered up without any way to get to them, this happens frequently, because, "the code doesn't make me do otherwise". This is loophole that needs to be eliminated so that these safety devices can be accessed.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 51.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, these valves might have to be located elsewhere where access can be made to the valve. This might involve a little more piping and labor. Or, at a minimum, an access panel might have to be installed in a wall or ceiling. As access wasn't required before, this extra work to provide access might increase the cost of construction in some situations.

P82-15 Part II : P2713.3-SNYDER5920

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: What is "large enough"? This needs to be quantitified.

Assembly Motion: As Submitted

Online Vote Results: **Successful**
Support: 53% (53) Oppose: 47% (47)
Assembly Action : **Approved as Submitted**

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action
requests Approve as Submitted.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Approve as Submitted was successful by a vote of 53% (53) to 47% (47) by eligible members online during the period of May 14 - May 28, 2015.

P82-15 Part II

P93-15 Part I

504.6

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART II IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART I.

2015 International Plumbing Code

Revise as follows:

504.6 Requirements for discharge piping. The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall:

1. Not be directly connected to the drainage system.
2. Discharge through an *air gap* located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the *air gap*.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor, to the pan serving the water heater or storage tank, to a waste receptor or to the outdoors.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed so as to flow by gravity.
10. Terminate not more than 6 inches (152 mm) above and not less than two times the discharge pipe diameter above the floor or *flood level rim* of the waste receptor.
11. Not have a threaded connection at the end of such piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials listed in Section 605.4 or materials tested, rated and *approved* for such use in accordance with ASME A112.4.1.
14. <u>Be one nominal size larger than the size of the relief valve outlet, where the relief valve discharge piping is constructed of PEX or PE-RT tubing installed with insert fittings. The outlet end of such tubing shall be fastened in place.</u>

Reason: This revision was accepted to the IRC in the last cycle. The issue is simply this: In some cases (perhaps the majority of cases), PEX and PE-RT tubing is connected using insert fittings. Where an insert fitting is used to connect to a relief valve, the ID of the insert fitting is significantly smaller than the ID of PEX or PE-RT tubing of the same nominal size of the relief valve outlet. This smaller opening might create excessive restriction where the relief valve had a full trip event. Therefore, increasing the size of the tubing increases the size of the insert fitting to allow for less restriction.

Fastening the end of the tubing is a safety measure to keep the discharge of water at the intended location. PEX and PE-RT tubing can be "springy" and could easy dislodge from the intended discharge point.

Cost Impact: Will not increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P93-15 Part I : 504.6-SNYDER5921

Public Hearing Results

Part I

Committee Action: Approved as Submitted

Committee Reason: Same size PEX pipe connected with insert fittings is not large enough inside diameter for proper T & P valve relief flow.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Michael Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservices.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

504.6 Requirements for discharge piping. The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall:

1. Not be directly connected to the drainage system.
2. Discharge through an *air gap* located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the *air gap*.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor, to the pan serving the water heater or storage tank, to a waste receptor or to the outdoors.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed so as to flow by gravity.
10. Terminate not more than 6 inches (152 mm) above and not less

than two times the discharge pipe diameter above the floor or *flood level rim* of the waste receptor.

11. Not have a threaded connection at the end of such piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials listed in Section 605.4 or materials tested, rated and *approved* for such use in accordance with ASME A112.4.1.
14. Be one nominal size larger than the size of the relief valve outlet, where the relief valve discharge piping is ~~constructed of PEX or PE-RT tubing~~ _ installed with insert fittings.
15. The outlet end of ~~such~~ flexible tubing shall be fastened in place.

Commenter's Reason: We suggest this modification, as calling out two types of material isn't optimal lanugage for the code, as other materials could be an issue, also the securing of the flexble tubing end should be a new number, because it is a specific requirement, seperate from the insert fitting issue.

Public Comment 2:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

504.6 Requirements for discharge piping. The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall:

1. Not be directly connected to the drainage system.
2. Discharge through an *air gap* located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the *air gap*.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor, to the pan serving the water heater or storage tank, to a waste receptor or to the outdoors.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed so as to flow by gravity.
10. Terminate not more than 6 inches (152 mm) above and not less than two times the discharge pipe diameter above the floor or *flood level rim* of the waste receptor.
11. Not have a threaded connection at the end of such piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials listed in Section 605.4 or materials tested, rated and *approved* for such use in accordance with ASME A112.4.1.
14. Be one nominal size larger than the size of the relief valve outlet,

where the relief valve discharge piping is ~~constructed of PEX or PE-RT tubing~~ installed with insert fittings. The outlet end of such tubing shall be fastened in place.

Commenter's Reason: PEX and PE-RT tubing might not be the only types of T&P discharge piping that can be installed with insert fittings. There is no need to be this specific. Part II for the IRC was Approved as Modified by the IRC Committee. This proposal for the IPC needs to be AMPC for consistency between the two plumbing codes.

P93-15 Part I

P93-15 Part II

P2804.6.1

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Residential Code

Revise as follows:

P2804.6.1 Requirements for discharge pipe. The discharge piping serving a pressure-relief valve, temperature-relief valve or combination valve shall:

1. Not be directly connected to the drainage system.
2. Discharge through an air gap located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the air gap.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor, to the pan serving the water heater or storage tank, to a waste receptor or to the outdoors.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed to flow by gravity.
10. Terminate not more than 6 inches (152 mm) and not less than two times the discharge pipe diameter above the floor or waste receptor flood level rim.
11. Not have a threaded connection at the end of the piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials indicated in Section P2906.5 or materials tested, rated and *approved* for such use in accordance with ASME A112.4.1.
14. Be one nominal size larger than the size of the relief-valve outlet, where the relief-valve discharge piping is ~~constructed of PEX or PE-RT tubing~~ installed with insert fittings. The outlet end of such tubing shall be fastened in place.

Reason: Item 14 was added to this section in the last cycle. The issue is simply this: In some cases (perhaps the majority of cases), PEX and PE-RT tubing is connected using insert fittings. Where an insert fitting is used to connect to a relief valve, the ID of the insert fitting is significantly smaller than the ID of PEX or PE-RT tubing of the same nominal size of the relief valve outlet. This smaller opening might create excessive restriction where the relief valve had a full trip event. Therefore, increasing the size of the tubing increases the size of the insert fitting to allow for less restriction. What was forgotten is that there are fittings that fit on the outside diameter of this type of tubing such that the inside area would not be restricted. This

added phrase allows for same size (as the relief valve outlet) tubing to be used where these "outside connect fittings" are used.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC 147.

Cost Impact: Will not increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P93-15 Part II :
P2804.6.1-SNYDER5922

Public Hearing Results

Part II

Committee Action: Approved as Modified

Modification:

P2804.6.1 Requirements for discharge pipe. The discharge piping serving a pressure-relief valve, temperature-relief valve or combination valve shall:

1. through 13. *Remain unchanged.*

14. Be one nominal size larger than the size of the relief valve outlet, where the relief valve discharge piping is ~~constructed of PEX or PE-RT tubing~~ installed with insert fittings.

Committee Reason: For the Modification only:

There is no need to be specific about PEX and PE-RT; any type of piping that is connected using an insert fitting needs to be upsized.

For the proposal As Modified:

Insert fittings into "same size as the valve outlet" piping will cause a restriction in flow from the relief valve which could affect the safety of the equipment.

Assembly Action : None

P94-15

504.6.1 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Add new text as follows:

504.6.1 Relief valve indirect waste piping. Indirect waste piping that receives the discharge from not more than two ¾ inch (19 mm) relief valves shall be not less than ¾ inch (19 mm)nominal pipe size. Where indirect waste piping receives the discharge from more than two ¾ inch (19 mm) relief valves, the piping shall be not less than 1 ½ inch (38.1 mm) nominal pipe size. Indirect waste piping receiving only the discharge from relief valves shall not require liquid-seal traps.

Reason: Multi-story buildings having water heaters on each floor (water heaters "stacked") sometimes have an indirect waste pipe "stack" to catch each of the T&P discharge pipes. There is currently no sizing criteria in the code. The proposed language is what the State of New York has used successfully for many years. The 3+ relief valve indirect waste pipe size doesn't have to be any bigger for more water heaters as all of the T&P valves would never be leaking all at once. The 1 ½ inch pipe size is easy to work with in walls, is resistant to accidental damage during rough-in and is economical.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 29.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P94-15 : 504.6.1 (New)-SNYDER3955

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This would be a direct conflict with Item 4 of Section 504.6.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Committee (PMGCAC@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: The PMGCAC doesn't believe that the Committee understood the proposal. The IPC Commentary has discussed this common arrangment for relief valve discharge piping for many code editions. However, frequent questions arise as to the sizing of this waste piping that "collects" the potential relief valve discharges. The figure below (from the 2015 IPC Commentary) illustrates the typical arrangement.

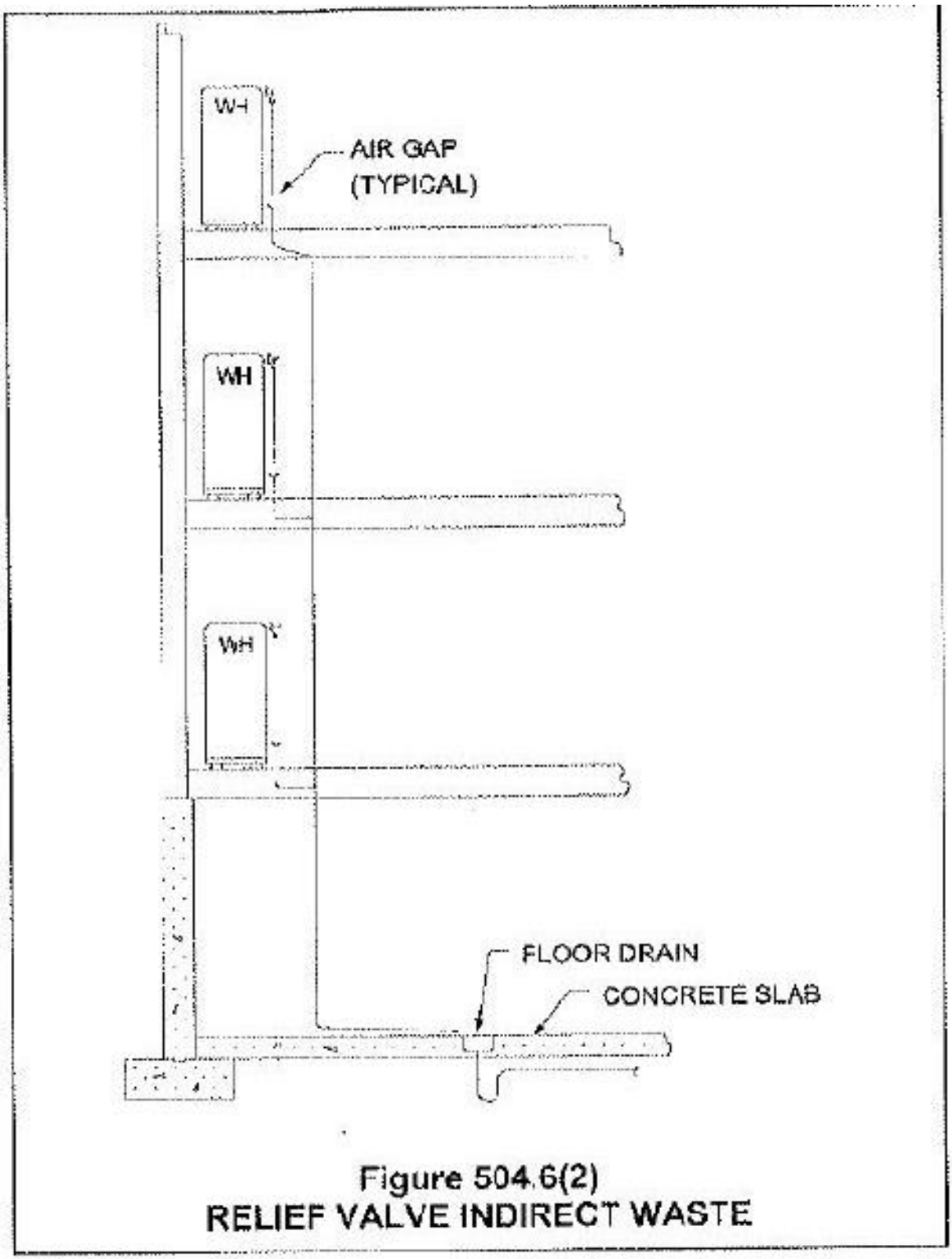


Figure 504.6(2)
RELIEF VALVE INDIRECT WASTE

Note that there is an air gap from the end of each T&P relief valve discharge pipe above the waste receptor in the room with the water heater (satisfying Item 2 of Section 504.6). As such, Item 4 of Section 504.6 is *not* violated because all of the items of Section 504.6 are soncerning the discharge piping of the relief valve, *not* the waste piping that collects water discharged from the T&P relief valve discharge pipe(s).

P94-15

P101-15 Part II

P2903.7

Proposed Change as Submitted

Proponent : Julius Ballanco, representing Self (JBENGINEER@aol.com)

NOTE: PART I DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART I IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART II.

2015 International Residential Code

Revise as follows:

P2903.7 Size of water-service mains, branch mains and risers. The size of the water service pipe shall be not less than ~~3/4~~ 1 inch (19 mm) diameter. The size of water service mains, branch mains and risers shall be determined from the water supply demand [gpm (L/m)], available water pressure [psi (kPa)] and friction loss caused by the water meter and *developed length* of pipe [feet (m)], including *equivalent length* of fittings. The size of each water distribution system shall be determined according to design methods conforming to acceptable engineering practice, such as those methods in Appendix P and shall be *approved* by the code official.

Reason: The minimum pipe size of ¾ inch dates back to the Hoover Code days, whereby it was understood that the minimum pipe size for a single family dwelling could be ½ inch galvanized steel pipe. This sizing was based on one bathroom and a kitchen sink. That was the original indoor plumbing required for a single family dwelling. The code predated the use of copper tube or plastic pipe. However, in case additional fixtures were added to the home, it was mandated that the water service be a minimum of ¾ inch. Most water services during this period of time were lead pipe. The inside diameter of ¾ inch lead pipe was ¾ inch.
Today's modern home has minimum plumbing requirements that dictate a pipe size of at least ¾ inch. Following the concept of the earlier codes, this would result in upsizing the water service to a minimum of 1 inch pipe. Additionally, both the International Building Code and International Plumbing Code require residential sprinklers for all single family dwellings. With a typical demand of two residential sprinklers, the minimum flow rate for the system becomes 16 gpm. The residential sprinkler flow rate can be as high as 40 gpm or more. This would result in the need for a 1 inch water service.

The most popular pipe used today for residential water service is polyethylene. It has been estimated that 90 percent of the water services for single family dwellings in the United States is polyethylene.

A ¾ inch polyethylene tube has an inside diameter that range from 0.625 inches to 0.715 inches depending on the SDR. A 1 inch polyethylene tube would be more in line with the older ¾ inch lead water service regarding size. Furthermore, the inside diameter of 1 inch polyethylene is very similar to 3/4 inch galvanized steel pipe. The inside diameter of ¾ inch galvanized steel pipe is 0.824 inches. The inside diameter of 1 inch polyethylene pipe, SDR 9 is 0.875 inches.

Based on the additional fixtures required for a single family dwelling and the requirement for residential sprinklers, the minimum water service must be increased to 1 inch.

Cost Impact: Will increase the cost of construction

The cost of the piping material will be higher.

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: This will increase the cost of the tap fee and water meter and is a large cost to the homeowner forever.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, representing IRC Fire Sprinkler Coalition (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: The claim by the Committee is that this will increase the tap fees. That is not accurate. The size of the water service does not dictate the size of the tap nor the size of the meter. It is common practice to have a 3/4 inch tap with a 5/8 inch meter, yet the water service is 1". This is a common installation practice already used across the county. There are even water services that are 1-1/4 inch in size, with a 3/4 inch tap and 5/8 inch meter. The reason for this larger size is the length of the water service from the public main to the dwelling unit. Contrary to the statement by the Committee, there is no continuous annual fee because a larger size water service is installed.
The tap and the meter size are not the issue with this proposed change. The issue is the pressure loss in the water service pipe. A 3/4 inch water service cannot provide the flow and pressure that is needed for homes with the greater number of plumbing fixtures and a residential sprinkler system. Furthermore, homeowners often add plumbing fixtures after moving into the home. This places even a greater burden on the water service.

There is minimal cost for increasing the size of the water service. The difference in price between a 3/4 inch polyethylene water service and a 1 inch polyethylene water service is pennies a foot. The labor to install a 3/4 inch water service is the same as a 1 inch water service. Hence, there is minimal cost for a significant gain in performance of the plumbing system. One only has to review Table P2904.6.2(1) to see how poorly a 3/4 inch water service is in providing water to a dwelling unit.

To allow a 3/4 inch water service would place a burden on the homeowner. Any future changes would require a signifiant expenditure to replace the water service with a larger size water service.

P101-15 Part I

603.1

Proposed Change as Submitted

Proponent : Julius Ballanco, representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

603.1 Size of water service pipe. The water service pipe shall be sized to supply water to the structure in the quantities and at the pressures required in this code. The water service pipe shall be not less than ~~3/4~~ 1 inch (~~19.1~~ 25.4 mm) in diameter.

Reason: The minimum pipe size of ¾ inch dates back to the Hoover Code days, whereby it was understood that the minimum pipe size for a single family dwelling could be ½ inch galvanized steel pipe. This sizing was based on one bathroom and a kitchen sink. That was the original indoor plumbing required for a single family dwelling. The code predated the use of copper tube or plastic pipe. However, in case additional fixtures were added to the home, it was mandated that the water service be a minimum of ¾ inch. Most water services during this period of time were lead pipe. The inside diameter of ¾ inch lead pipe was ¾ inch.
Today's modern home has minimum plumbing requirements that dictate a pipe size of at least ¾ inch. Following the concept of the earlier codes, this would result in upsizing the water service to a minimum of 1 inch pipe. Additionally, both the International Building Code and International Plumbing Code require residential sprinklers for all single family dwellings. With a typical demand of two residential sprinklers, the minimum flow rate for the system becomes 16 gpm. The residential sprinkler flow rate can be as high as 40 gpm or more. This would result in the need for a 1 inch water service.

The most popular pipe used today for residential water service is polyethylene. It has been estimated that 90 percent of the water services for single family dwellings in the United States is polyethylene.

A ¾ inch polyethylene tube has an inside diameter that range from 0.625 inches to 0.715 inches depending on the SDR. A 1 inch polyethylene tube would be more in line with the older ¾ inch lead water service regarding size. Furthermore, the inside diameter of 1 inch polyethylene is very similar to 3/4 inch galvanized steel pipe. The inside diameter of ¾ inch galvanized steel pipe is 0.824 inches. The inside diameter of 1 inch polyethylene pipe, SDR 9 is 0.875 inches.

Based on the additional fixtures required for a single family dwelling and the requirement for residential sprinklers, the minimum water service must be increased to 1 inch.

Cost Impact: Will increase the cost of construction
The increase in cost is minimal based on the cost of the piping material. The labor and installation costs remain the same.

P101-15 Part I : 603.1-BALLANCO5899

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: A 3/4 inch minumum size for a water service line is a good starting point. Fixture flow rates are being reduced so the 3/4 inch size becomes even more appropriate. Increasing the minimum size will significantly increase the cost of construction because of increased tap fee and larger meter size fee.

Assembly Action : None

P102-15
604.2

Proposed Change as Submitted

Proponent : Ronald George, Self; Plumb-Tech Design & Consulting Services LLC, representing Self; Plumb-Tech Design & Consulting Services LLC (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Revise as follows:

604.2 System interconnection. At the points of interconnection between the hot and cold water supply piping systems and the individual fixtures, appliances or devices, provisions shall be made to prevent flow between such piping systems. Hot water circulation systems shall not utilize cold water distribution piping for the return of water to the water heater.

Reason: This is a health hazard routing hot water return through the cold water distribution system. Routing hot water return through the cold water supply pipes creates a condition where it will not be possible to get cold water in some cases. It also creates a condition where LEgionell bacteria can grow.

Cost Impact: Will not increase the cost of construction
Cross connections are already prohibited. Returning hot water through the cold water pipe is a cross-connection where hot water can be routed to other fixtures.

P102-15 : 604.2-GEORGE5205

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: Allowing a controlled and limited about of warm water to pass into the cold water system as part of a recirculation system does not create a hazard for the cold water system.

Assembly Motion: **As Submitted**
Online Vote Results: **Failed**
Support: 9.83% (17) Oppose: 90.17% (156)
Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Ronald George, Plumb-Tech Design & Consulting Services LLC, representing Self requests Approve as Submitted.

Commenter's Reason: The plumbing code has recently Accepted "Cross Connections" as an "Acceptable Practice" The last code development cycle for the International Codes brought about a code change that was submitted to the model

codes by a manufacturer of a unique product that has filled an aftermarket niche. An entrepreneur decided to address the problem of dumping water down the drain while waiting for hot water to arrive at a fixture. Since this code change went into the code, just about every pump manufacturer has jumped on the band wagon to sell these small pumps at significant prices. Instead of requiring a dedicated hot water return piping system, the proponents solution to the problem was simply to add a small circulating pump under the lavatory or sink and connect it to both the hot and cold water lines to the fixture and pull hot water to the fixture through the hot water pipe and utilize the cold water pipes as a hot water return path back to the water heater. (This only works where there are no check valves in the hot water system)
When I first heard of the concept of circulating hot water back through the cold water piping, I was slightly amused and I was well aware of the fact that it was an obvious cross connection along with a health and safety issues. The hot water in the cold water piping can create a scalding hazard and if it is hot or warm water it can lead to accelerated water treatment chemical dissipation and there will be an increase in the growth of bacteria and other organic pathogens in the water which creates a biological and potentially a Legionella hazard. When I first saw the proposal, I was pretty sure that the plumbing industry was not going to accept circulating hot water in the cold water piping because that is a direct cross-connection and the code prohibits cross-connections. I thought the backflow prevention folks would surely see this and step up to address the issue at the code hearings.
Unfortunately, during the code hearing testimony, there was little or no opposing testimony from the backflow industry on this issue and the proposed code change was promoted as a "water saving" and "energy saving" measure to reduce the waste of water poured down the drain and to reduce the energy used to heat that water. It seems like green marketing hype had an effect on code development. They bought it and the code change passed. It seems you can call something green and people seem to think green is good so they blindly support it. Anyone can propose a code change and sometimes they don't understand all of the consequences of their proposals. This sometimes leads to code change proposals that are well intentioned, yet unsanitary and unsafe. If a presentation is done well, it is possible to convince enough code committee members to support a code change that is in conflict with other sections of the code because it sounded good at the time.

The code change to recirculate hot water through the cold water pipes was presented in the name of energy and water conservation. I'm the number one advocate for energy conservation and water conservation, but only if it does not create a health and safety issue. It appears the code change for circulating hot water back to the water heater passed because many of the code committee members were thinking of their personal experiences of waiting for hot water in their home and they were not presented with facts about the potential health and safety consequences to the public in larger buildings. I think this system is great for an individual homeowner who knowingly chooses to install this system in a private home and live with the health and safety consequences of such a decision. It would be appropriate for the International Residential Code (IRC), but not the IPC.
I do not believe we should allow this as a design option for commercial buildings and multi-family buildings. We already have a way for hot water to be maintained at the fixture by installing a dedicated hot water return piping system. The codes have accepted cross-connections as an acceptable design practice.

With this code language, we have gone back in time about 50 years to the days of two handle faucets with crossover flow. I submitted code change (P-139-15) to undue the code change from the last cycle. I'm hoping there will be some comments and some common sense employed to correct this terrible mistake by well-intentioned individuals that have created a serious health and safety issue. The following are reasons why we should not circulate hot or tempered water through the cold water distribution pipes:

1. Circulating hot water in the cold water pipes can scald someone who will not expect to find hot water in the cold water pipes. This is a form of cross connection that backflow protection language in the codes was specifically intended to prevent. The proponent has indicated there can be a thermostat that shuts-off the circulator when the water temperature gets to a given temperature, but that is a manufacturing option in their catalog and there is no language in the code change

that mandates thermostats or even a maximum or minimum temperature. As the code change is
written, there is no temperature limit for hot water that can be circulated through the cold water piping.

2. If someone in a high rise apartment building has a bathroom located a considerable distance from the circulated main they decide to install one of these circulator pumps under a lavatory or sink, the code will allow them and then everyone else in the building will have hot water return water flowing through their cold water piping. In some of these high rise buildings there are different pressure zones that flow through pressure reducing valves or through booster pumps. Now with this code change the circulator pump will be pushing hot water back against a booster pump on the cold water system. This is why we have code language prohibiting cross-connections between plumbing systems. These systems should be limited to single family homes only. They should not be allowed in the International Plumbing Code, they should be relegated to the international residential code. If circulating hot water though the cold water pipes is allowed people in all other floors or areas of large buildings will be drinking and brushing their teeth with hot or warm water that has metals from dissolved anode rods and elevated bacteria levels.

3. Recirculating hot or warm water in the cold water piping will increase bacteria growth and biofilm formation in the cold water piping.

4. Hot water in the cold water piping system will promote accelerated dissipation of water treatment chemicals - The act of recirculating the hot water back into the cold water system is actually holding the water and circulating it in the piping system longer than it normally would have been. With the increase in low-flow and ultralow-flow fixtures associated with water conservation measure, the water treatment chemicals will dissipate at the same rate while the flow rate goes down.

5. Reducing the water flowing out of and into the water system promotes stagnation. Lack of flushing water flow causes the water to remain in the piping system for longer periods of time. This contributes to water treatment dissipation and will lead to an increase in bacteria levels in the domestic water system and will contribute to legionella bacteria and other organic pathogen growth in the domestic water systems.

6. This allows the water treatment chemicals to dissipate over time and when the water is circulated though the water heater, the heat accelerates the dissipation rate of the water treatment chemicals. The water is held in the plumbing system for longer periods of time contributing to stagnation and loss of water treatment chemicals and less water in the drain to contribute to drain line transport.

7. If someone in any commercial building installs one of these circulating pumps that circulate through the cold water pipes, the people in other areas of the building that want or expect cold water will be receiving hot or warm water when the draw water from a tap for drinking or cooking. I would not be happy if the electric water cooler or drinking fountain in my office was receiving hot or warm water that is injected into the cold water pipes from a circulation pump under a sink in a tenant space down the hall. I will be drinking hot or warm water from the drinking fountain and if I have an electric water cooler, my electric bill is going to go up because now the refrigeration unit on my electric water cooler will be cooling hot or warm water instead of cold water.

8. The hot water in the cold water pipes will have dissolved metals in the hot water. This is because all tank type water heaters have magnesium or aluminum sacrificial anode rods in the tank that corrode and dissolve metals into the water to protect the tank from corrosion. These dissolved metals are present in hot water tanks, but typically not in the cold water piping. This is why all cooking shows recommend you fill your cooking kettles with cold water. It is for this same reason I don't want the tenant on another floor in a condo building being allowed to circulate hot water with dissolved metals into my cold water piping on another floor for drinking and cooking water.

P102-15

P105-15
Table 604.4

Proposed Change as Submitted

Proponent : John Addario, New York State Department of State - Building Standards and Codes, representing New York State Department of State - Building Standards and Codes (john.addario@dos.state.ny.us)

2015 International Plumbing Code

Revise as follows:

TABLE 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY [b]
Water closet - public and private	~~1.6~~1.28 gallons per flushing cycle[c]
Water closet—public and remote[d]	1.6 gpf

(Portions of table not shown remain unchanged)

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standard.

c. The effective flush volume for dual-flush water closet is defined as the composite, average flush volume of two reduced flushes and one full flush.In public settings, the maximum water use of a dual flush water closet is based solely on its full flush operation; not an average of full and reduced volume flushes.

d. A water closet is remote where its discharge is combined with less than 1.5 DFU discharge from other fixtures and such discharge must flow horizontally for 30 feet or more.

Reason: This proposal reflects the current requirements in the IGCC for high efficiency water closets. The last cycle the committee was concerned that there was a need for further study in the use of high effeciency water closets. The proposed

change addresses these concerns by exempting them in a public setting when they are installed in a remote location. This proposal is in line with the IGCC and addresses the concerns from the committee from the last cycle.

Cost Impact: Will not increase the cost of construction
The price of plumbing fixtures and fittings vary due to style, trim, and material. The attached documents demonstrate that esssentially there will be no cost impact in response to adopting these requirements. The attached only reflects the bare cost comparision of the fixtures and does not include the cost saving realized from water conservation.

P105-15 : T604.4 - ADDARIO4773

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The next phase of the PERC study needs to be completed before water closet water consumption (per full flush) is reduced further as there are concerns about not enough water to move solids along long runs of horizontal piping.

Assembly Motion: As Modified
Online Vote Results: Failed
Support: 11.43% (20) Oppose: 88.57% (155)
Assembly Action : None

Online Floor Modification:

TABLE 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY [b]
Lavatory, private	2.2 gpm at 60 psi
Lavatory, public (metering)	0.25 gallon per metering cycle
Lavatory, public (other than metering)	0.5 gpm at 60 psi
Shower head [a]	2.5 gpm at 80 psi
Sink faucet	2.2 gpm at 60 psi
Urinal	1.0 gallon per flushing cycle
Water closet ~~-private and non-remote public~~[~~d~~]	1.28 gallons per flushing cycle[c,d,e]
~~Water closet - remote public~~[~~d~~]	~~1.6 gpf~~

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standard.

c. The effective flush volume for a dual-flush water closet is defined as the composite, average flush volume of two reduced flushes and one full flush. ~~In public settings, the maximum water use of a dual flush water closet is based solely on its full flush operation; not an average of full and reduced volume flushes.~~

d. ~~A water closet is remote where its discharge is combined with less than 1.5 DFU discharge from other fixtures and such discharge flows horizontally for 30 feet or more.~~ 1.6 gallons per flushing cycle is permitted at a location where no other fixtures discharge upstream of the drain line connection to the water closet.

e. 1.6 gallons per flushing cycle for a water closet connected to a building's existing sanitary drainage piping.

Individual Consideration Agenda

Public Comment 1:

Proponent : Karen Hobbs, Natural Resources Defense Council, representing Natural Resources Defense Council (khobbs@nrdc.org); Ed Osann, representing National Resources Defense Council (eosann@nrdc.org); Anthony Floyd, representing City of Scottsdale (afloyd@scottsdaleaz.gov); John Addario, Department of State, Division of Building Standards and Codes , representing NYS Dept of State (john.addario@dos.ny.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

TABLE 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE	MAXIMUM FLOW RATE

OR FIXTURE FITTING	OR QUANTITY [b]
Water closet ~~public and private~~	~~1.6~~1.28 gallons per flushing cycle[c,d,e]
~~Water closet public and remote[d]~~	~~1.6 gpf~~

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standard.

c. The effective flush volume for dual-flush water closet is defined as the composite, average flush volume of two reduced flushes and one full flush. ~~In public settings, the maximum water use of a dual flush water closet is based solely on its full flush operation; not an average of full and reduced volume flushes.~~

d. ~~A water closet is remote where its discharge is combined with less than 1.5 DFU discharge from other fixtures and such discharge must flow horizontally for 30 feet or more.~~ 1.6 gallons per flushing cycle where no other fixtures discharge upstream of the drain piping connection to the water closet.

e. 1.6 gallons per flushing cycle for a water closet connected to a building's existing sanitary drainage piping.

Commenter's Reason: The Technical Committee stated this reason for disapproval: "The next phase of the PERC study needs to be completed before water closet water consumption (per full flush) is reduced further as there are concerns about not enough water to move solids along long runs of horizontal piping."
The Committee's statement is at odds with the results of the study it references, "The Drainline Transport of Solid Waste in Buildings" (see link below), published in 2012 by the Plumbing Efficiency Research Coalition (PERC). On p. 7, the PERC study found that, "The 1.28 gallon (4.8 L) and 1.6 gallon (6.0 L) test runs resulted in an orderly and predictable movement in the Test Apparatus." Based on these findings, the study went on to recommend "that the U.S. EPA WaterSense Program expand their specification on toilets to include commecial flushometer-valve operated HETs." On p. 45, another reported finding was "Toilet hydraulics (percent trailing water and flush rate) were found to be non-significant variables. As such, the effect that toilet fixture designs have on drain line transport in long building drains has been found to be minimal."

The PERC Phase 2 Test Plan Proposal, "Phase 2: Test Plan Proposal to Investigate Drainline Transport in Buildings" (attached), clearly focuses on 0.8 and 1.0 gpf toilets, neither of which is the object of this proposed change. According to the Phase 2 Test Plan Proposal, a 3-inch diameter drainline will be used to mirror the 4-inch diameter line employed in Phase 1. However, it is noted that most plumbing engineers recognize that reduced pipe diameter size enhances the transporting of waste down the drainline due to higher flood levels. Also, the "Phase I test variables associated with toilet discharge characteristics, flush rate and percent trailing water, were shown to be non-significant at both the 1% and 2% slope settings."

Thus, it should be clear that concerns about 1.28 gpf water closets creating or exacerbating drain line transport issues are unfounded. This is a view shared by

plumbing manufacturers as well --

> Since the introduction of the low-flow 1.6 gpf and 1.28 gpf toilets, questions have been raised about whether water-saving toilets flush with a sufficient volume of water to move solid wastes through the building drainlines and the municipal sewer system. Industry research through the Plumbing Efficiency Research Coalition (PERC) presents no evidence that waste transport problems are due to low-flow toilets. -- Barbara C. Higgens, CEO/Executive Director, Plumbing Manufacturers International, March 13, 2014.

Nevertheless, out of abundance of caution, the proposal as modified by this comment will allow 1.6 gpf toilets to be installed at any location where there is no other fixture discharge upstream, and whenever a water closet is being installed (or reinstalled) on an existing building drainage system.

Given that the Committee's stated reason for disapproval overlooked the most relevent results of the initial PERC study and deferred to the next phase of research that will investigate the performance of lower flush volumes than proposed here, we respectfully request approval as modified.

Bibliography: "Drainline Transport of Solid Waste in Buildings," Plumbing Efficiency Research Coalition, November, 2012, http://www.plumbingefficiencyresearchcoalition.org/projects/drainline-transport-of-solid-waste-in-buildings/.
Statement of Plumbing Manufacturers International, Barbara C. Higgens, CEO/Executive Director, on Colorado Senate Bill 14-103, Concerning the Phase-Out of the Sale of Certain Low-Efficiency Plumbing Fixtures, March 13, 2014

P105-15

P108-15
Table 604.4

Proposed Change as Submitted

Proponent : Karen Hobbs, Natural Resources Defense Council, representing Natural Resources Defense Council (khobbs@nrdc.org)

2015 International Plumbing Code

Revise as follows:

TABLE 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY [b]
Urinal	~~1.0~~ 0.5 gallon per flushing cycle
Water closet[c,d,e]	~~1.6~~ 1.28 gallons per flushing cycle

(Portions of table not shown remain unchanged)

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standards.

c. 1.6 gallons per flushing cycle for a water closet connected to the sanitary drainage system of an existing building.

d. The effective flush volume for a dual-flush water closet is defined as the composite, average flush volume of two reduced flushes and one full flush.

e. In public settings, the maximum water use of a dual flush water closet is based solely on its full flush operation; not the average of full and reduced volume flushes.

Reason: Recent advancements have allowed toilets to use 1.28 gallons per flush or less while providing equal or superior performance. This is 20 percent less water than the current federal standard of 1.6 gallons per flush. Toilets are by far the main source of water use in the home, accounting for nearly 30 percent of an average home's indoor water consumption. Water-efficient toilets can reduce water use in the home and help preserve the nation's water resources. Unlike some first-generation, "low-flow" toilets, high-efficiency toilets combine efficiency with high performance. Design advances enable high-efficiency toilets to save water with no

trade-off in flushing performance or drainline function. In fact, many perform better than standard toilets in consumer testing (Source: EPA *WaterSense*:http://www.epa.gov/WaterSense/products/toilets.html). *WaterSense* criteria for tank-type water closets were established in 2007. Based on the most recent reports by *WaterSense* partners, more than 2,305 models of tank-type toilets from more than 115 brands currently meet the *WaterSense* specification, showing the widespread availability and commercial viability of these more efficient water closets.

Like toilets, urinals operating at 0.5 gpf or better are commonly availabile today and perform as well as those with higher flush volume. WaterSense criteria for flushing urinals were established in 2009. Manufacturers have reponded by bringing large numbers of models to market that meet or exceed WaterSense specifications. Based on the most recent reports by WaterSense partners, 151 models of urinal fixtures from 15 brands and 91 models of urinal valves from 7 brands currently meet the WaterSense specification of 0.5 gpf, demonstrating the widespread availability and commercial viability of more efficient urinals. With the pace of introduction of new models that meet WaterSense specifications, it is reasonable to expect that these figures will be even larger by 2018.

The Natural Resources Defense Council (NRDC) estimates that significant water savings could be realized if these standards were applied nationwide effective in 2018:

- **For toilets**, approximately 36 million gallons of water per day could be saved in the residential sector by 2030 (this value represents savings from residential toilets; it does not exclude flushometer valve toilets in the residential secctor and tank-type toilets in the Commercial and Industrial sectors). NRDC estimates savings in the commercial sector of 8 million gallons of water per day by 2030.
- **For urinals**, water savings would reach 2 million gallons per day by 2030.

Reducing water use is an integral part of the stated purpose of the International Plumbing Code. As noted in Chapter 1 of the 2015 edition: "**101.3 Intent**. The purpose of the code is to establish minimum standards to provide a reasonable level of safety, health, property protection and public welfare by regulating the controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of plumbing equipment and systems."

Nothing is more fundamental to public "health, safety, property protection and public welfare" than the maintenance of adequate water supplies. Water-saving technologies, such as high-efficiency toilets and urinals, reduce water use, helping to ensure that water supplies are maintained at safe and reliable levels, maintaining human health and firefighting capability, as well as environmental resources.

Maximum Performance (MaP) of Toilet Fixtures

December 3, 2014

The following list of toilet fixtures was screened from the current MaP database of 3,084 tank-type models. All models on this list include these characteristics: WaterSense compliant, single-flush, 1.28 gallons per flush maximum, gravity-fed, elongated ADA height bowl, floor-mounted, 12-inch rough-in, minimum 3-inch flush valve, and a MaP score of 1,000 grams. Except for the 3 models highlighted below, all feature a trapway in excess of 2 inches. Current retail prices for the models were obtained where possible from retailer websites.

MaP Report No.	Brand Name	Model Name	Model Number	MaP Flush Performance Score (grams of waste removed in a single flush)	1- or 2-piece	Flush Valve-Flapper size (in.)	Round (R) or Elongated (E) bowl	ADA Height Bowl	Pressure- or power-assist (P), gravity-fed (G), OR gravity-fed with a vacuum assist (V)	Single-Flush HET	Floor- (F) OR Wall-Mounted (W)	Trapway diameter	Pricing, Availability, Comments	
17-078RN33	American Standard	C3 Concealed Trap EL ADA	2621.101: 3075.001 bowl, 4000.101 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	Model no. no longer offered by Am Std	Identical to Am Std 2989.101
17-078RN33	American Standard	C3 Concealed Trap EL ADA	2989.101: 3075.001 bowl, 4000.101 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	Amer Std List of $516; $328 @ Amazon; $341 @ efaucets.com	
29-024	American Standard	Champion 4 HET EL ADA	2793.128: 3195A.101R bowl, 4149A.101R tank	1,000	2	4	E	ADA	G	HET	F	2.1250	$239 @ Lowe's	
24-105	American Standard	Champion 4 Max EL ADA	231AA.104: 3395A.001 bowl, 4215A.104 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$279 @ Home Depot	
24-105	American Standard	Champion 4 Max EL ADA	2586.128ST: 3195A.001R bowl, 4215A.101 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$219 @ Home Depot	
24-114	American Standard	Champion PRO HET EL ADA	211AA.104: 3195A.101 bowl, 4225A.104 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$256 @ Ferguson	
17-078RN33	American Standard	Clean EL ADA	2514.101: 3075.100 bowl, 4000.107 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	$219 @ Lowe's	Identical to Am Std 2989.101
17-078RN33	American Standard	Clean EL ADA	2523.101: 3075.200 bowl, 4000.107 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	Discontinued by Am Std	Identical to Am Std 2989.101
30-079	American Standard	New Cadet 3.1 EL ADA	270FA.101: 3717F.001 bowl, 4019.101N tank	1,000	2	3	E	ADA	G	HET	F	2.0625	$231 @ Home Depot	
24-114	American Standard	Portsmouth Champion PRO HET EL ADA	213AA.104: 3195A.101 bowl, 4327A.104 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$303 @ faucetdirect.com, faucet.com, and build.com; $312 @ Home Depot	
17-078RN33	American Standard	Ravenna 3 EL (concealed trap)	2629.101: 3075.000 bowl, 4000.101 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	Discontinued by Am Std	Identical to Am Std 2989.101
24-114	American Standard	Retrospect Champion PRO HET EL ADA	212AA.104: 3195A.101 bowl, 4326A.104 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$338 @ Ferguson	
27-074	Axent	None EL ADA	LW0207	1,000	2	3	E	ADA	G	HET	F	2.1300	$164 @ Lowe's	
14-020RN29	Chelini	Cabot EL ADA (lined tank)	B1516E bowl, T10348 tank (lined tank)	1,000	2	3	E	ADA	G	HET	F	2.2500	Unavailable here; http://www.chelinicollection.com/showad.php?view=showad&adid=32	
18-011RN34	Dolphin Plumbing Industrial	Chicago EL ADA	Z59E16 bowl, S19348 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	Unavailable here	http://www.dolphinhomeware.com/product1841416.html
23-036	Dolphin Plumbing Industrial	Hilton EL ADA	Z40E16 bowl, S40348 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	Unavailable here	
34-007	Foremost	Dietrich EL ADA (lined tank)	TL-7227-*L: LL-7227 bowl, T-7227-*L tank	1,000	2	3	E	ADA	G	HET	F	2.0870	Only available in Canada	
28-024	Foremost	HET EL ADA	TL-8832-* : T-8832 unlined tank, LL-8832 bowl	1,000	2	3	E	ADA	G	HET	F	2.0500	Available as Mirabelle thru Ferguson (see below)	
27-068	Gerber	Allerton EL ADA	HE-20-008: HE-21-577 bowl, HE-28-585 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	$445 list by Gerber; $260 @ chicagofaucetshoppe	http://www.chicagofaucetshoppe.com/Gerber_20_008_Allerton_Elongated_Toilet_p/ger-20008.htm
27-069	Gerber	Allerton EL ADA	HE-20-007: HE-21-577 bowl, HE-28-580 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	$385 list by Gerber; $369 @ Home Depot	

MaP Report No.	Brand Name	Model Name	Model Number	MaP Flush Performance Score (grams of waste removed in a single flush)	1- or 2-piece	Flush Valve-Flapper size (in.)	Round (R) or Elongated (E) bowl	ADA Height Bowl	Pressure- or power-assist (P), gravity-fed (G), OR gravity-fed with a vacuum assist (V)	Single-Flush HET	Floor- (F) OR Wall-Mounted (W)	Trapway diameter	Pricing, Availability, Comments	
29-034	Home Depot	Glacier Bay EL ADA	SKU 686-826: 331-725B bowl, N2428T tank (by Niagara)	1,000	2	3	E	ADA	G	HET	F	2.0000	$98 @ Home Depot	Doesn't meet trapway criteria
29-037, 15-007b & 12 129	Home Depot	Glacier Bay EL ADA	SKU 331-725: 331-725B bowl, 331-725T tank (by Niagara) **(Also sold as All-In-One package with UPC bar code: 732291222518)**	1,000	2	3	E	ADA	G	HET	F	2.0000	Discontinued by HD	
13-037RN28	Jacuzzi	Espree HET EL ADA	Jacuzzi SKU EZ36959 **(Also sold as Lowe's SKU 48624) Sold as complete toilet set (includes bowl, tank, seat, and installation accessories).**	1,000	2	3	E	ADA	G	HET	F	2.1250	Not currently sold at Lowe's or elsewhere	
13-032RN28	Kohler	Cimarron EL ADA	K-3609: 4309 bowl, 4421 tank - **NOTE: this fixture is also sold as K-11451, K-11813, K-11823, and K-98977 when included as part of the "COMPLETE SOLUTION" package**	1,000	2	3	E	ADA	G	HET	F	2.1250	$299 @ Lowe's; $185 @ Home Depot; $292 @ Ferguson	
13-032RN28	Kohler	Cimarron Touchless EB EL ADA	K-6418: 4309 bowl, 5692 tank **NOTE: this fixture is also sold as K-99249 when included as part of the "COMPLETE SOLUTION" package.**	1,000	2	3	E	ADA	G	HET	F	2.1250	$436 @ Home Depot; $341 @ Ferguson	
25-060	Lixil Corporation	Lafayette EL ADA	C-616S-MC-US: C61S bowl, T-4566U-US tank	1,000	2	2	E	ADA	G	HET	F	2.0500	American std discontinuing Lixil models	
27-074	Lowe's	Aquasource EL ADA (by Axent)	352027/LW0207	1,000	2	3	E	ADA	G	HET	F	2.1300	$164 @ Lowe's	
28-024 & 14-005	Mirabelle (Ferguson brand)	Boca Raton HET EL ADA	MIRBR240AWH bowl, MIRBR200AWH tank (white color)	1,000	2	3	E	ADA	G	HET	F	2.0500	$380 @ Ferguson	
29-034	Niagara Conservation	None EL ADA (12-in rough-in)	N2428E: 331-725B bowl, N2428T tank	1,000	2	3	E	ADA	G	HET	F	2.0000	See Home Depot Glacier Bay above; this model is identical to HD SKU 686-826	
23-043	Unison Ridge	Galliani EL ADA	UB1916E3 bowl, T19348 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	Unavailable here	

Bibliography: Koeller, John, "Single-flush toilet matrix-2014-12-03.pdf"; December, 2014.

Cost Impact: Will not increase the cost of construction
Adoption of this code change proposal will not increase the cost of construction. As noted above, more than 2,305 models of tank-type toilets from more than 115 brands currently meet the 1.28 gpf standard in this proposal; for urinals, 151

models of urinal fixtures from 15 brands and 91 models of urinal valves from 7 brands currently meet the *WaterSense* specification of 0.5 gpf (Source: MaP Testing: http://www.map-testing.com/high-efficiency-toilets.html). *Consumer Reports* identifies top-performing toilets at 1.28 gpf, ranging in cost from $100 to $380 (Source: *Consumer Reports*, "Water-saving toilets from Consumer Reports' tests: Stop flushing water and money down the drain," July 14, 2014: http://www.consumerreports.org/cro/news/2014/07/water-saving-toilets-from-consumer-reports-tests/index.htm.
In addition, attached is a list of toilet fixtures that was screened from the current MaP database; all models on the list are 1.28 gpf. Current retail prices for the models were obtained where possible from retailer websites (file name: "Single-flush toilet matrix-2014-12-03.pdf."

According to EPA's *WaterSense*, "Our product research has found that high-efficiency urinal fixtures and flushing devices are no more expensive than their standard (1.0 gpf) counterparts. The average price of a new high-efficiency or standard urinal fixture is about $350 and the average cost for a high-efficiency or standard pressurized flushing device (flushometer valve) is approximately $200. Because there is very little to no cost difference between high-efficiency flushing urinals and standard flushing urinals, installing high-efficiency models in new construction or as part of the natural replacement process is cost-effective with immediate payback in water cost savings" (Source: EPA *WaterSense*: http://www.epa.gov/WaterSense/pubs/faq_lfu.html).

The City of Tucson has found that "Prices [for urinals] are comparable to those for regular urinals and toilets" (Source: City of Tucson, "Commercial-Industrial High Efficiency Urinal Rebate Program," http://water.tucsonaz.gov/files/water/docs/Urinal_Brochure_2-13.pdf).

P108-15 : T604.4-HOBBS5110

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There are unknown problems with lowering water flow rates. Consistent with committee's action on P110-15.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Karen Hobbs, Natural Resources Defense Council, representing Natural Resources Defense Council (khobbs@nrdc.org); Ed Osann, representing Natural Resources Defense Council (eosann@nrdc.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

TABLE 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY [b]
Urinal	0.5 gallon per flushing cycle
Water closet[~~c,d,e~~]	~~1.28~~1.6 gallons per flushing cycle

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standards.

~~c. 1.6 gallons per flushing cycle for a water closet connected to the sanitary drainage system of an existing building.~~

~~d. The effective flush volume for a dual flush water closet is defined as the composite, average flush volume of two reduced flushes and one full flush.~~

~~e. In public settings, the maximum water use of a dual flush water closet is based solely on its full flush operation; not the average of full and reduced volume flushes.~~

Commenter's Reason: As modified by this comment, this proposal ONLY pertains to urinals, changing the maximum flush volume from 1 gallon per flush in the current code to 0.5 gallon per flush.
The Techncial Committee's reason statement for disapproval, "There are unknown problems with lowering water flow rates," clearly does not apply to WaterSense-labeled 0.5 gpf urinals. There are no known problems with 0.5 gpf urinals; indeed, as noted by the Plumbing Manufacturers International (PMI) in a December 19, 2014 letter to the California Energy Commission regarding PMI's support for a 0.5 gpf standard for urinals, "...EPA WaterSense Specifications that have been vetted through a consensus process to ensure that such fixtures function safely and effectively" (that letter is attached).

WaterSense established the 0.5 gpf standard in 2009. According to the most recent reports from WaterSense partners, 151 models of urinal fixtures from 15 brands and 91 models of urinal valves from 7 brands currently meet the specification.

As noted in the original reason statement, there is little to no cost difference between high-efficiency flushing urinals (0.5 gpf) and standard urinals (1.0 gpf). By lowering water and sewer costs, 0.5 gpf urinals save money for building owners and occupants.

http://media.iccsafe.org/cdpACCESS/docs/P108.pdf

P108-15

P109-15 Part I

Table 604.4

Proposed Change as Submitted

Proponent : Karen Hobbs, Natural Resources Defense Council, representing Natural Resources Defense Council (khobbs@nrdc.org)

2015 International Plumbing Code

Revise as follows:

TABLE 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY [b]
Lavatory, private	~~2.2~~1.5 gpm at 60 psi
Shower head [a]	~~2.5~~2.0 gpm at 80 psi

(Portions of table not shown remain unchanged)

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standards.

Reason: Showerheads operating at 2.0 gpm at 80 psi are commonly available and perform as well as showerheads operating at 2.5 gpm. The *WaterSense* specification for showerheads was adopted in 2010, including a maximum flow rate of 2.0 gpm at 80 psi. Based on the most recent reports by *WaterSense* partners, more than 800 models from 45 brands currently meet the proposed standard, demonstrating the widespread availability and commercial viability of these types of showerheads (Source: MaP Testing: http://www.map-testing.com/).
Residential lavatory faucets rated at 1.5 gpm or less are also commonly available and perform as well as those with higher flow rates. WaterSense established criteria for residential lavatory faucets and faucet accessories such as aerators in 2007. Based on the most recent reports by WaterSense partners, over 5,200 models from 134 brands currently meet the WaterSense specification, showing the widespread availability and commercial viability of more efficient lavatory faucets (Source: MaP Testing: http://www.map-testing.com/).

The Natural Resources Defense Council (NRDC) estimates that significant water and energy savings could accrue nationwide if these revised flow rates for showerheads and faucets became effective in 2018 (savings estimates apply only to the residential sector):

- **Water and energy savings potential for showerheads**:
- 86 million gallons of water per day by 2030;
- 1,553 MWh (Megawatt hours) of electricity per year by 2030; and;
- 112 million therms of natural gas per year by 2030.

- **Water and energy savings potential for faucets**:
- 122 million gallons of water per day by 2030;
- 2,199 MWh (Megawatt hours) of electricity per year by 2030; and
- 158 million therms of natural gas per year by 2030.

Reducing water use is an integral part of the stated purpose of the International Plumbing Code. As noted in Chapter 1 of the 2015 edition: "**101.3 Intent.** The purpose of the code is to establish minimum standards to provide a reasonable level of safety, health, property protection and public welfare by regulating the controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of plumbing equipment and systems."

Nothing is more fundamental to public "health, safety, property protection and public welfare" than the maintenance of adequate water supplies. Water-saving technologies, such as high-efficiency faucets and showerheads, reduce water use, helping to ensure that water supplies are maintained at safe and reliable levels, protecting human health and firefighting capability, as well as environmental resources.

Cost Impact: Will not increase the cost of construction
As noted above, both showerheads and faucets operating at the flow rates proposed are commonly available and perform as well as less efficient fixtures. For showerheads, more than 800 models from 45 brands currently meet the proposed standard; for faucets, over 5,200 models from 134 brands currently meet the proposed standard (Source: MaP Testing; http://www.map-testing.com/). According to EPA WaterSense, "Showerheads are available at a variety of price points and ranges in cost may be due to a number of factors including style or functional design" (Source: EPA WaterSense: http://www.epa.gov/WaterSense/pubs/faq_showerheads.html).
Consumer Reports found that, "If you think you have to spend top dollar to get a strong performer, think again. Our top-rated multisetting showerhead costs a quarter of the price of the model that finished second" (Source: *Consumer Reports*: http://www.consumerreports.org/cro/showerheads/buying-guide.htm).

Regarding faucets, EPA WaterSense also found that, "Most high-efficiency faucet accessories that restrict flow are no more expensive that their conventional counterparts. However, pressure compensating faucet accessories that are designed to provide and maintain a constant flow rate despite fluctuations in water pressure typically cost a few dollars
more." http://www.epa.gov/WaterSense/faucets.html. Lowe's Home Improvement Store features more than 1,759 residential bathroom faucets that meet the proposed standard of 1.5 gpm from 19 brands, ranging in cost from $15 to $2000 (Source: Lowe's Home Improvement Store website: http://www.lowes.com/Bathroom/Bathroom-Faucets/Bathroom-Sink-Faucets/_/N-1z0wz0vZ1z0z4i4/pl#!). For showerheads, Lowe's lists 185 products from 15 brands, ranging in cost from $5 to $400 (Source: Lowe's Home Improvement Store website: http://www.lowes.com/Bathroom/Showers-Shower-Accessories/Showerheads/_/N-1z0wz0vZ1z0z4gq/pl#!).

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: Consistency with committee's action on P108-15.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Karen Hobbs, Natural Resources Defense Council, representing Natural Resources Defense Council (khobbs@nrdc.org); Ed Osann, representing National Resources Defense Council (eosann@nrdc.org); Anthony Floyd, representing City of Scottsdale (afloyd@scottsdaleaz.gov) requests Approve as Submitted.

Commenter's Reason: Part 1 of this proposal is solely about revisions to maximum flow rates for private lavatory faucets and showerheads.
The Technical Committee's stated reason for disapproval references committee action on two other proposals, P108-15 and P110-15. The committee's reason statements for those disapprovals cited "unknown problems with lowering water flow rates," and, for P110-15,"The IgCC provides the guidance for the lower flow fixtures. The PERC study needs to be finished before the IPC moves towards lower flow rates for water closets."

We would like to address each of the Committee's statements:

1. "Unknown problems with lowering flow rates" -- There is no evidence of problems associated with lower flow rates for showerheads and lavatory faucets. The Phase 1 PERC test finding (see below for link) and Phase 2 test plan (attached) are based on tolet hydraulics and drain line transport in long building drains. The identified issue is with 0.8 and 1.0 gpf toilets. The reduced flow rates of showerheads and lavatory faucets have not been identified as a contributing issue for drain line transport.

2. "The IgCC provides the guidance for the lower flow fixtures" - Reducing water use is an integral part of the stated purpose of the International Plumbing Code. As noted in Chapter 1 of the 2015 edition, "The purpose of the code is to establish minimum standards to provide a reasonable level of safety, health, property protection and public welfare by regulating the controlling the design, construction, installation quality of materials, location, operation and maintenance or use of plumbing equipment and systems." Nothing is more fundamental to public "health, safety, property protection and public welfare" than the maintenance of adequate water supplies. Water-saving technologies, such as high-efficiency toilets and urinals, reduce water use, helping to ensure that water supplies are maintained at safe and reliable levels, maintaining human health and firefighting capability as well as environmental resources.

3. "The PERC study needs to be finished before the IPC moves towards lower flow rates for water closets" - The referenced Phase 2 PERC Test Plan proposal (attached), is for water closets and not relevant to this proposal. This proposal is

about reducing flow rates for lavatory faucets and showerheads, not water closets. It is possible the Committee members were confused by the opponent's testimony.

Bibliography: The Drainline Transport of Solid Waste in Buildings, Plumbing Efficiency Research Coalition, November, 2012, http://www.plumbingefficiencyresearchcoalition.org/projects/drainline-transport-of-solid-waste-in-buildings.

P109-15 Part I

P109-15 Part II

Table P2903.2

Proposed Change as Submitted

Proponent : Karen Hobbs, Natural Resources Defense Council, representing Natural Resources Defense Council (khobbs@nrdc.org)

2015 International Residential Code

Revise as follows:

TABLE P2903.2
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY[b]
Lavatory faucet	~~2.2~~1.5 gpm at 60 psi
Water closet[c]	~~1.6~~1.28 gallons per flushing cycle

(Portions of table not shown remain unchanged)

For SI: 1 gallon per minute = 3.785 L/m,

1 pound per square inch = 6.895 kPa.

a. A handheld shower spray shall be considered a shower head.

b. Consumption tolerances shall be determined from referenced standards.

c. 1.6 gallons per flushing cycle for a water closet connected to the sanitary drainage system of an existing building.

Reason: Recent advancements have allowed toilets to use 1.28 gallons per flush or less while providing equal or superior performance. This is 20 percent less water than the current federal standard of 1.6 gallons per flush. Toilets are by far the main source of water use in the home, accounting for nearly 30 percent of an average home's indoor water consumption. Water-efficient toilets can reduce water use in the home and help preserve the nation's water resources. Unlike some first-generation, water-saving toilets twenty years ago, high-efficiency toilets today combine efficiency with high performance. Design advances enable high-efficiency toilets to save water with no trade-off in flushing performance or drainline function. In fact, many perform better than standard toilets in consumer testing (source: EPA *WaterSense*; http://www.epa.gov/WaterSense/products/toilets.html).
WaterSense criteria for tank-type water closets were established in 2007. Based on the most recent reports by *WaterSense* partners, more than 2,305 models of tank-type toilets from more than 115 brands currently meet the *WaterSense* specification, showing the widespread availability and commercial viability of these more efficient water closets (Source: MaP Testing; http://www.map-testing.com/high-efficiency-toilets.html).

Faucets account for more than 15 percent of indoor household water use -- more than 1 trillion gallons of water across the United States each year. High efficiency bathroom sink faucets that use a maximum of 1.5 gallons per minute can reduce a sink's water flow by 30 percent or more from the standard flow of 2.2 gallons per minute without sacrificing performance (Source: EPA WaterSense; http://www.epa.gov/watersense/products/bathroom_sink_faucets.html). Residential lavatory faucets rated at 1.5 gpm or less are commonly available and perform as well as those with higher flows. EPA's WaterSense established criteria for residential lavatory faucets and faucet accessories such as aerators in 2007. Based on the most recent reports by WaterSense partners, over 5,200 models from 134 brands currently meet the WaterSense specification, showing the widespread availability and commercial viability of more efficient lavatory faucets.

The Natural Resources Defense Council (NRDC) estimates that significant water and energy savings could be realized if these standards were applied nationwide effective in 2018:

- **For toilets**, approximately 36 million gallons of water per day could be saved by 2030 (this value represents savings from residential toilets; it does not exclude flushometer valve toilets in the residential secctor and tank-type toilets in the Commercial and Industrial sectors).
- **For faucets**, both water and energy savings could be realized:
    - 122 million gallons of water per day by 2030;
    - 2,199 MWh (Megawatt hours) of electricity per year by 2030; and
    - 158 million therms of natural gas per year by 2030.

Finally, reducing energy and water use is an integrall part of the stated purpose of the IRC:

> The purpose of this code is to establish minimum requirements to safeguard the public safety, health and general welfare through affordability, structural strength, means of egress facilities, stability, sanitation, light and ventilation, energy conservation and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergy responders during emergency operations (Source: International Residential Code, R101.3 Intent).

This proposal, by reducing demands on energy and water systems from new homes, clearly advances "public safety, health and general welfare" through affordable practices and energy conservation. Water-saving technologies, such as high-efficiency toilets, reduce water use, helping to ensure that water supplies are maintained at safe and reliable levels, protecting human health and firefighting capability as well as environmental resources; these technologies also reduce consumers' water and sewer bills. High efficiency faucets provide substantial energy savings as noted above, as well as water savings. The American Council for an Energy-Efficient Economy finds that "Utility energy efficiency programs have yielded significant energy and economic benefits to the utility system and to ratepayers. Energy efficiency programs have also led to job growth in many fields, including the building trades" (Source: American Council for an Energy-Efficient Economy: www.aceee.org/topics/energy-efficiency-programs).

Maximum Performance (MaP) of Toilet Fixtures

December 3, 2014

The following list of toilet fixtures was screened from the current MaP database of 3,084 tank-type models. All models on this list include these characteristics: WaterSense compliant, single-flush, 1.28 gallons per flush maximum, gravity-fed, elongated ADA height bowl, floor-mounted, 12-inch rough-in, minimum 3-inch flush valve, and a MaP score of 1,000 grams. Except for the 3 models highlighted below, all feature a trapway in excess of 2 inches. Current retail prices for the models were obtained where possible from retailer websites.

MaP Report No.	Brand Name	Model Name	Model Number	MaP Flush Performance Score (grams of waste removed in a single flush)	1- or 2-piece	Flush Valve-Flapper size (in.)	Round (R) or Elongated (E) bowl	ADA Height Bowl	Pressure- or power-assist (P), gravity-fed (G), OR gravity-fed with a vacuum assist (V)	Single-Flush HET	Floor- (F) OR Wall-Mounted (W)	Trapway diameter	Pricing, Availability, Comments	
17-078RN33	American Standard	C3 Concealed Trap EL ADA	2621.101: 3075.001 bowl, 4000.101 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	Model no. no longer offered by Am Std	Identical to Am Std 2989.101
17-078RN33	American Standard	C3 Concealed Trap EL ADA	2989.101: 3075.001 bowl, 4000.101 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	Amer Std List of $516; $328 @ Amazon; $341 @ efaucets.com	
29-024	American Standard	Champion 4 HET EL ADA	2793.128: 3195A.101R bowl, 4149A.101R tank	1,000	2	4	E	ADA	G	HET	F	2.1250	$239 @ Lowe's	
24-105	American Standard	Champion 4 Max EL ADA	231AA.104: 3395A.001 bowl, 4215A.104 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$279 @ Home Depot	
24-105	American Standard	Champion 4 Max EL ADA	2586.128ST: 3195A.001R bowl, 4215A.101 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$219 @ Home Depot	
24-114	American Standard	Champion PRO HET EL ADA	211AA.104: 3195A.101 bowl, 4225A.104 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$256 @ Ferguson	
17-078RN33	American Standard	Clean EL ADA	2514.101: 3075.100 bowl, 4000.107 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	$219 @ Lowe's	Identical to Am Std 2989.101
17-078RN33	American Standard	Clean EL ADA	2523.101: 3075.200 bowl, 4000.107 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	Discontinued by Am Std	Identical to Am Std 2989.101
30-079	American Standard	New Cadet 3.1 EL ADA	270FA.101: 3717F.001 bowl, 4019.101N tank	1,000	2	3	E	ADA	G	HET	F	2.0625	$231 @ Home Depot	
24-114	American Standard	Portsmouth Champion PRO HET EL ADA	213AA.104: 3195A.101 bowl, 4327A.104 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$303 @ faucetdirect.com, faucet.com, and build.com; $312 @ Home Depot	
17-078RN33	American Standard	Ravenna 3 EL (concealed trap)	2629.101: 3075.000 bowl, 4000.101 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	Discontinued by Am Std	Identical to Am Std 2989.101
24-114	American Standard	Retrospect Champion PRO HET EL ADA	212AA.104: 3195A.101 bowl, 4326A.104 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$338 @ Ferguson	
27-074	Axent	None EL ADA	LW0207	1,000	2	3	E	ADA	G	HET	F	2.1300	$164 @ Lowe's	
14-020RN29	Chelini	Cabot EL ADA (lined tank)	B1516E bowl, T10348 tank (lined tank)	1,000	2	3	E	ADA	G	HET	F	2.2500	Unavailable here; http://www.chelinicollection.com/showad.php?view=showad&adid=32	
18-011RN34	Dolphin Plumbing Industrial	Chicago EL ADA	Z59E16 bowl, S19348 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	Unavailable here	http://www.dolphinhomeware.com/product1841416.html
23-036	Dolphin Plumbing Industrial	Hilton EL ADA	Z40E16 bowl, S40348 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	Unavailable here	
34-007	Foremost	Dietrich EL ADA (lined tank)	TL-7227-*L: LL-7227 bowl, T-7227-*L tank	1,000	2	3	E	ADA	G	HET	F	2.0870	Only available in Canada	
28-024	Foremost	HET EL ADA	TL-8832-* : T-8832 unlined tank, LL-8832 bowl	1,000	2	3	E	ADA	G	HET	F	2.0500	Available as Mirabelle thru Ferguson (see below)	
27-068	Gerber	Allerton EL ADA	HE-20-008: HE-21-577 bowl, HE-28-585 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	$445 list by Gerber; $260 @ chicagofaucetshoppe	http://www.chicagofaucetshoppe.com/Gerber_20_008_Allerton_Elongated_Toilet_p/ger-20008.htm
27-069	Gerber	Allerton EL ADA	HE-20-007: HE-21-577 bowl, HE-28-580 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	$385 list by Gerber; $369 @ Home Depot	

MaP Report No.	Brand Name	Model Name	Model Number	MaP Flush Performance Score (grams of waste removed in a single flush)	1- or 2-piece	Flush Valve-Flapper size (in.)	Round (R) or Elongated (E) bowl	ADA Height Bowl	Pressure- or power-assist (P), gravity-fed (G), OR gravity-fed with a vacuum assist (V)	Single-Flush HET	Floor- (F) OR Wall-Mounted (W)	Trapway diameter	Pricing, Availability, Comments	
29-034	Home Depot	Glacier Bay EL ADA	SKU 686-826: 331-725B bowl, N2428T tank (by Niagara)	1,000	2	3	E	ADA	G	HET	F	2.0000	$98 @ Home Depot	Doesn't meet trapway criteria
29-037, 15-007b & 12 129	Home Depot	Glacier Bay EL ADA	SKU 331-725: 331-725B bowl, 331-725T tank (by Niagara) **(Also sold as All-In-One package with UPC bar code: 732291222518)**	1,000	2	3	E	ADA	G	HET	F	2.0000	Discontinued by HD	
13-037RN28	Jacuzzi	Espree HET EL ADA	Jacuzzi SKU EZ36959 **(Also sold as Lowe's SKU 48624) Sold as complete toilet set (includes bowl, tank, seat, and installation accessories).**	1,000	2	3	E	ADA	G	HET	F	2.1250	Not currently sold at Lowe's or elsewhere	
13-032RN28	Kohler	Cimarron EL ADA	K-3609: 4309 bowl, 4421 tank - **NOTE: this fixture is also sold as K-11451, K-11813, K-11823, and K-98977 when included as part of the "COMPLETE SOLUTION" package**	1,000	2	3	E	ADA	G	HET	F	2.1250	$299 @ Lowe's; $185 @ Home Depot; $292 @ Ferguson	
13-032RN28	Kohler	Cimarron Touchless EB EL ADA	K-6418: 4309 bowl, 5692 tank **NOTE: this fixture is also sold as K-99249 when included as part of the "COMPLETE SOLUTION" package.**	1,000	2	3	E	ADA	G	HET	F	2.1250	$436 @ Home Depot; $341 @ Ferguson	
25-060	Lixil Corporation	Lafayette EL ADA	C-616S-MC-US: C61S bowl, T-4566U-US tank	1,000	2	2	E	ADA	G	HET	F	2.0500	American std discontinuing Lixil models	
27-074	Lowe's	Aquasource EL ADA (by Axent)	352027/LW0207	1,000	2	3	E	ADA	G	HET	F	2.1300	$164 @ Lowe's	
28-024 & 14-005	Mirabelle (Ferguson brand)	Boca Raton HET EL ADA	MIRBR240AWH bowl, MIRBR200AWH tank (white color)	1,000	2	3	E	ADA	G	HET	F	2.0500	$380 @ Ferguson	
29-034	Niagara Conservation	None EL ADA (12-in rough-in)	N2428E: 331-725B bowl, N2428T tank	1,000	2	3	E	ADA	G	HET	F	2.0000	See Home Depot Glacier Bay above; this model is identical to HD SKU 686-826	
23-043	Unison Ridge	Galliani EL ADA	UB1916E3 bowl, T19348 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	Unavailable here	

Bibliography: Koeller, John, "Single-flush toilet matrix-2014-12-03.pdf"; December, 2014.

Cost Impact: Will not increase the cost of construction
Adoption of this code change proposal will not increase the cost of construction. As noted above, more than 2,305 models of tank-type toilets from more than 115 brands currently meet the 1.28 gpf standard in this proposal. (Source: MaP Testing; http://www.map-testing.com/). *Consumer Reports* identifies top-performing high-efficiency toilets at 1.28 gpf, ranging in cost from $100 to $380. (Source: *Consumer Reports*, "Water-saving toilets from *Consumer Reports*' tests: Stop flushing water and money down the drain," July 14, 2014:

http://www.consumerreports.org/cro/news/2014/07/water-saving-toilets-from-consumer-reports-tests/index.htm).
In addition, attached is a list of toilet fixtures screened from the current MaP database; all models on the list are 1.28 gpf. Current retail prices for the models were obtained where possible from retailer websites (file name: "Single-flush toilet matrix-2014-12-03.pdf").

Consumer Reports tested 16 brands of faucets ranging in price from $80 to $600 and found little difference in performance or durability (Source: "Water Conservation with Shower and Faucet Tips", http://www.scgh.com/go-green/water-fixtures-and-plumbing/water-wise-showers-and-faucets/).

Regarding faucets, EPA WaterSense also found that, "Most high-efficiency faucet accessories that restrict flow are no more expensive that their conventional counterparts. However, pressure compensating faucet accessories that are designed to provide and maintain a constant flow rate despite fluctuations in water pressure typically cost a few dollars more" (Source: EPA WaterSense: http://www.epa.gov/WaterSense/faucets.html). Lowe's Home Improvement Store features more than 1,759 residential bathroom faucets that meet the proposed standard of 1.5 gpm from 19 brands, ranging in cost from $15 to $2000 (Source: Lowe's Home Improvement Store website: http://www.lowes.com/Bathroom/Bathroom-Faucets/Bathroom-Sink-Faucets/_/N-1z0wz0vZ1z0z4i4/pl#!).

P109-15 Part II : Table P2903.2-HOBBS5070

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: There is a concern that in older homes, the slope of some piping is very steep and it is known that it takes more water to move solids in piping with greater slope. This code affects older homes where water closets are replaced. Some jurisdications are allowing greater water closet flows in some applications in order to make the drainage system work.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Karen Hobbs, Natural Resources Defense Council, representing Natural Resources Defense Council (khobbs@nrdc.org); Ed Osann, representing National Resources Defense Council (eosann@nrdc.org); Anthony Floyd, representing City of Scottsdale (afloyd@scottsdaleaz.gov) requests Approve as Submitted.

Commenter's Reason: The Technical Committee's stated reason for disapproval was, "There is a concern that in older homes, the slope of some piping is very steep and it is known that it takes more water to move solids in piping with greater slope. This code affects older homes where water closets are replaced. Some jurisdictions are allowing greater water closet flows in some applications in order to make the drainage system work."

We would respectfully note that this code change proposal allows a water closet with 1.6 gallons per flush to be installed on an existing building drainage system, which addresses the Committee's concern that "This code affects older homes where water closets are replaced."

To address the Committee's other concerns, we would note that "The Drainline Transport of Solid Waste in Buildings" (see below for link) found that, "The 1.28 gallon (4.8 L) and 1.6 gallon (6.0 L) test runs resulted in an orderly and predictable movement in the Test Apparatus." On p. 45, another reported finding was "Toilet hydraulics (percent trailing water and flush rate) were found to be non-significant variables. As such, the effect that toilet fixture designs have on drainline transport in long building drains has been found to be minimal."

While the next phase of this study, "Phase 2: Test Plan Proposal to Investigate Drainline Transport in Buildings" (attached), clearly focuses on 0.8 and 1.0 gpf toilets, it does note that the "Phase I test variables associated with toilet discharge characteristics, flush rate and percent trailing water, were shown to be non-significant at both the 1% and 2% slope settings."

Thus, it should be clear that concerns about 1.28 gpf water closets creating or exacerbating drain line transport issues are unfounded. This is a view shared by plumbing manufacturers as well --

> Since the introduction of the low-flow 1.6 gpf and 1.28 gpf toilets, questions have been raised about whether water-saving toilets flush with a sufficient volume of water to move solid wastes through the building drainlines and the municipal sewer system. Industry research through the Plumbing Efficiency Research Coalition (PERC) presents no evidence that waste transport problems are due to low-flow toilets. -- Barbara C. Higgens, CEO/Executive Director, Plumbing Manufacturers International, March 13, 2014.

Bibliography: The Drainline Transport of Solid Waste in Buildings, Plumbing Efficiency Research Coalition, November, 2012, http://www.plumbingefficiencyresearchcoalition.org/projects/drainline-transport-of-solid-waste-in-buildings.

P109-15 Part II

P110-15
Table 604.4

Proposed Change as Submitted

Proponent : Billy Smith, American Society of Plumbing Engineers Legislative Committee, representing American Society of Plumbing Engineers Legislative Committee (bsmith@aspe.org)

2015 International Plumbing Code

Revise as follows:

TABLE 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY [b]
Water closet, private use application	1.6 gallons per flushing cycle
Water closet, public use application	1.28 gallons per full flushing cycle or, where equipped with dual flush device, 1.6 gallons per full flush cycle

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standards.

Reason: This will increase the water conservation requirements for public use water closets. Every manufacturer of water closets has a 1.28 gallon per flush public water closet. Similarly, every manufacturer of water closets has a bowl for public use that can be equipped with a dual flush device.
If you consider a standard commercial building with 100 water closets. The water savings amounts to more than 33,000 gallons per year. This savings is accomplished without any loss in performance of the plumbing system.

Cost Impact: Will increase the cost of construction
This may increase the cost depending on which fixture is selected to install. The cost of the fixture may be higher. The installation is the same cost.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The IgCC provides the guidance for the lower flow fixtures. The PERC study needs to be finished before the IPC moves towards lower flow rates for water closets.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: This change is different from the other changes in that it is not in violation of the Federal mandate. Concern was expressed that the preemption from the Federal mandate only applies to states, not local jurisdictions. This change would still allow a 1.6 gpf water closet. It would simply have to be a dual flush. There is no need for any study since liquids are flushed with more water than the current urinals. However, it is a saving from the 1.6 gallons for a full flush. The other option would be to install a 1.28 gpf water closet. These are already prevalent and working very well. Again, this would be an option, not a mandate.

P115-15 Part I

605.4

Proposed Change as Submitted

Proponent : Gary Morgan, Viega LLC, representing Viega LLC (gary.morgan@viega.us)

2015 International Plumbing Code

Revise as follows:

605.4 Water distribution pipe. Water distribution pipe shall conform to NSF 61 and shall conform to one of the standards listed in Table 605.4. ~~Hot water~~ Water distribution pipe and tubing shall have a pressure rating of not less than 100 psi (690 kPa) at 180ºF (82ºC).

Reason: This code proposal is really only an attempt to address a subtle technicality that has existed for a very long time. The addition of "and cold" to this sentence makes it 100% clear that even cold water distribution piping needs to be temperature/pressure rated at 180F. Another possible way to address the issue is to simply remove "hot" from the same sentence. All of the piping standards listed in Table 605.4 for water distribution piping already meet this mandatory elevated temperature/pressure rating. The existing code language stating specifically "hot water distribution pipe and tubing" implies that pipes used for cold water distribution piping may not need to carry elevated temperature/pressure rating.
Your support of this proposal would be most appreciated!

Cost Impact: Will not increase the cost of construction
This proposal has absolutely no impact on the cost of construction and only attempts to address a technicality which has existed for many years.

P115-15 Part I : 605.4-MORGAN5960

Public Hearing Results

Part I

Committee Action: Approved as Modified

Modification:

605.4 Water distribution pipe. Water distribution pipe shall conform to NSF 61 and shall conform to one of the standards listed in Table 605.4. ~~Hot and cold~~ W~~w~~ater distribution pipe and tubing shall have a pressure rating of not less than 100 psi (690 kPa) at 180ºF (82ºC).

Committee Reason: For the Modification only:

The terms "hot" and "cold" are unecessary as the intent is that all water distribution piping must comply.

For the proposal As Modified:

The committee agreed with the proponent's reason statement.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Disapprove.

Commenter's Reason: This is a hidden attempt to restrict competitive piping materials. There is no reason for having cold water piping rated for hot water. Currently, polyethylene and PVC water pipe cannot meet the hot water temperature and pressure requirements. However, both are excellent materials for cold water piping. The proponent has not given any valid reason for removing the acceptance of these materials.

P115-15 Part I

P115-15 Part II

P2906.5

Proposed Change as Submitted

Proponent : Gary Morgan, Viega LLC, representing Viega LLC (gary.morgan@viega.us)

2015 International Residential Code

Revise as follows:

P2906.5 Water-distribution pipe. Water-distribution piping within *dwelling units* shall conform to NSF 61 and shall conform to one of the standards indicated in Table P2906.5. ~~Hot water distribution~~ Water-distribution pipe and tubing shall have a pressure rating of not less than 100 psi at 180°F (689 kPa at 82°C).

Reason: This code proposal is really only an attempt to address a subtle technicality that has existed for a very long time. The addition of "and cold" to this sentence makes it 100% clear that even cold water distribution piping needs to be temperature/pressure rated at 180F. Another possible way to address the issue is to simply remove "hot" from the same sentence. All of the piping standards listed in Table P2906.5 for water distribution piping already meet this mandatory elevated temperature/pressure rating. The existing code language stating specifically "hot water distribution pipe and tubing. ." implies that pipes used for cold water distribution piping may not need to carry an elevated temperature/pressure rating. Your support of this proposal would be most appreciated!

Cost Impact: Will not increase the cost of construction
This proposal has absolutely no impact on the cost of construction and only attempts to address a technicality which has existed for many years.

P115-15 Part II :
P2906.5-MORGAN5103

Public Hearing Results

Part II

Committee Action: Approved as Modified

Modification:

P2906.5 Water-distribution pipe. Water-distribution piping within dwelling units shall conform to NSF 61 and shall conform to one of the standards indicated in Table P2906.5. ~~Hot and cold~~ W~~w~~ater-distribution pipe and tubing shall have a pressure rating of not less than 100 psi at 180°F (689 kPa at 82°C).

Committee Reason: For the Modification only:

The terms "hot" and "cold" are unecessary as the intent is that all water distribution piping must comply.

For the proposal As Modified:

The committee agreed with the proponent's reason statement.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Disapprove.

Commenter's Reason: This is a hidden attempt to restrictive competitive piping materials. There is no reason for having cold water piping rated for hot water. Currently, polyethylene and PVC water pipe cannot meet the hot water temperature and pressure requirements. However, both are excellent materials for cold water piping. The proponent has not given any valid reason for removing the acceptance of these materials.

P115-15 Part II

P117-15 Part I

605.17, 605.17.3 (New), 605.17.3.1 (New)

Proposed Change as Submitted

Proponent : Gary Morgan, Viega LLC, representing Viega LLC (gary.morgan@viega.us)

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART II IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART I.

2015 International Plumbing Code

Revise as follows:

605.17 PEX plastic. Joints between cross-linked polyethylene plastic tubing and fittings shall comply with Sections 605.17.1 and 605.17.2. PEX tubing shall comply with Section 605.17.3.

Add new text as follows:

605.17.3 PEX tubing. The manufacturer of PEX tubing shall have marked the outside of the tubing with the thermoplastic material designation code in accordance with ASTM F876. The designation code shall consist of the abbreviation "PEX" followed by four digits. The first digit shall represent a chlorine resistance rating as established by testing in accordance with ASTM F876.

605.17.3.1 Chlorine resistance rating digits. The first digit of the designation code shall have the following meanings:

1. Digit "0" indicates that the tubing has not been tested for chlorine resistance or that tubing does not comply with the minimum requirements for chlorine resistance.

2. Digit "1" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 25% of the time at 140°F (60°C) and 75% of the time at 73°F (23°C).

3. Digit "3" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 50% of the time at 140°F (60°C) and 50% of the time at 73°F (23°C).

4. Digit "5" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 100% of the time at 140°F (60°C).

Reason: Disinfection of potable water using free chlorine as a disinfectant is the most common practice used today and has been over the last many decades. Not all plastic pipes have equal long-term performance when operating in a hot-chlorinated water enviroment therefore it is important for the user of this code to understand how plastic pipes are rated so pipes can be properly specified for their expected end use operating conditions.
The PEX standard ASTM F876 includes mandatory chlorine resistance designation code information needed by field personnel so that the PEX selected meets

the expected end use conditions of the installation. This information is normally included on the print line of the tubing in accordance with the listing of that specific tubing. Building inspectors not having ready access to the ASTM standard need code guidance so they will know if the tubing is correctly applied for the end use and environmental conditions of the installation. If the tubing will be used for a hot water recirculation system, the inspector needs to know how to determine if properly rated PEX has been used. Also, if the tubing will be installed in an environment that normally exceeds 73ºF (23ºC) (such as an attic in very warm climates), the inspector needs to know what designation code is required.

This proposal would require that all PEX tubing be marked with its material designation code according to ASTM F876. Currently the other PEX standard listed in the table of water distribution pipe, CSA B137.5, does not currently mandate a PEX material designation code marking requirement therefore it would be impossible for the specifier, installer, or code inspector to know if the tubing is suitable for the expected end use conditions.

Chlorine testing of all ASTM F876 and CSA B137.5 PEX tubing materials are required today for certification and listing which attempts to replicate the end-use conditions (time at elevated temperature) under which the tubing can operate and still reach an extrapolated test lifetime of 50 years.

Cost Impact: Will not increase the cost of construction
This proposal has absolutely no impact on the cost of construction and only seeks to clarify requirements within the code.

P117-15 Part I : 605.4-MORGAN5433

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: All of the proposed information is already in the standard for the product.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Pennie L Feehan, representing Self (penniefeehan@me.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

605.17.3 PEX ~~tubing.~~ temperature limitations ~~The manufacturer ofPEX tubingshall have marked the outside of the tubing with the thermoplastic material designation code in accordance~~ For PEX tubing complying with ASTM F876~~. The designation code~~ , the first digit folllowing "PEX" as marked on the tubing exterior shall ~~consist~~ be an indicator of the ~~abbreviation "PEX" followed by four digits~~ maximum service

temperatures for which the PEX tubing can be used. The ~~first digit~~ maximum service temperatures shall be ~~represent a chlorine resistance ratingas established by testing in accordance with ASTM F876.~~ as follows:

1. Digit "0": 73°F (23°C).
2. Digit "1": For not more than 25% of the time, greater than 73°F (23°C) and not exceeding140°F (60°C). For the remainder of the time, not greater than 73°F (23°C).
3. Digit "3": For not more than 50% of the time, greater than 73°F (23°C) and not exceeding 140°F (60°C). For the remainder of the time, not greater than 73°F (23°C).
4. Digit "5": 140°F (60°C).

~~**605.17.3.1 Chlorine resistance rating digits.** The first digit of the designation code shall have the following meanings:~~

~~1. Digit "0" indicates that the tubing has not been tested for chlorine resistance or that tubing does not comply with the minimum requirements for chlorine resistance.~~

~~2. Digit "1" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 25% of the time at 140°F (60°C) and 75% of the time at 73°F (23°C).~~

~~3. Digit "3" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 50% of the time at 140°F (60°C) and 50% of the time at 73°F (23°C).~~

~~4. Digit "5" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 100% of the time at 140°F (60°C).~~

Commenter's Reason:
This information is necessary for inspectors and installers to ensure that the tubing is installed using the proper material and in the correct locations for a successful installation.

For more than 100 years, municipal water purveyors have used chlorine to protect drinking water from disease-causing organisms. In 1997 Life Magazine declared "the filtration of drinking water plus the use of chlorine is probably the most significant public health advancement of the millennium". Chlorine has a residual effect throughout the entire water distribution system that may also have a negative influence on some plastic piping materials.

ASTM F876 contains chlorine designation codes and requirements that must be strictly adhered to when installing PEX tubing that may be expose to temperatures in excess of 73ºF for extended periods of time, such as in unconditioned building spaces (attics) and hot water recirculation loops.

If all PEX tubing available had the first digit designation of 5, there would not be any concern, but this is not the case. This information is necessary for the proper installation of PEX.

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

P117-15 Part II

P2906.9.1.5, P2906.9.1.5.3 (New), P2906.9.1.5.3.1 (New)

Proposed Change as Submitted

Proponent : Gary Morgan, Viega LLC, representing Viega LLC (gary.morgan@viega.us)

2015 International Residential Code

Revise as follows:

P2906.9.1.5 Cross-linked polyethylene plastic (PEX). Joints between cross-linked polyethylene plastic tubing or fittings shall comply with Section P2906.9.1.5.1 or Section P2906.9.1.5.2. PEX tubing shall comply with Section P2906.9.1.5.3.

Add new text as follows:

P2906.9.1.5.3 PEX tubing. The manufacturer of PEX tubing shall have marked the outside of the tubing with the thermoplastic material designation code in accordance with ASTM F876. The designation code shall consist of the abbreviation "PEX" followed by four digits. The first digit shall represent a chlorine resistance rating as established by testing in accordance with ASTM F876.

P2906.9.1.5.3.1 Chlorine resistance rating digits. The first digit of the designation code shall have the following meanings:

1. Digit "0" indicates that the tubing has not been tested for chlorine resistance or that tubing does not comply with the minimum requirements for chlorine resistance.

2. Digit "1" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 25% of the time at 140ºF (60ºC) and 75% of the time at 73ºF (23ºC).

3. Digit "3" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 50% of the time at 140ºF (60ºC) and 50% of the time at 73ºF (23ºC).

4. Digit "5" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 100% of the time at 140ºF (60ºC).

Reason: Note: This same proposal has also been made for the IPC. Disinfection of potable water using free chlorine as a disinfectant is the most common practice used today and has been over the last many decades. Not all plastic pipes have equal long-term performance when operating in a hot-chlorinated water enviroment therefore it is important for the user of this code to understand how plastic pipes are rated so pipes can be properly specified for their expected end use operating conditions.

The PEX standard ASTM F876 includes mandatory chlorine resistance designation code information needed by field personnel so that the PEX selected meets the expected end use conditions of the installation. This information is normally included on the print line of the tubing in accordance with the listing of that specific tubing. Building inspectors not having ready access to the ASTM standard need code guidance so they will know if the tubing is correctly applied for the end use and environmental conditions of the installation. If the tubing will be used for a hot water recirculation system, the inspector needs to know how to determine if properly rated PEX has been used. Also, if the tubing will be installed in an environment that normally exceeds 73ºF (23ºC) (such as an attic in very warm climates), the inspector needs to know what designation code is required.

This proposal would require that all PEX tubing be marked with its material designation code according to ASTM F876. Currently the other PEX standard listed in the table of water distribution pipe, CSA B137.5, does not currently mandate a PEX material designation code marking requirement therefore it would be impossible for the specifier, installer, or code inspector to know if the tubing is suitable for the expected end use conditions.

Chlorine testing of all ASTM F876 and CSA B137.5 PEX tubing materials are required today for certification and listing which attempts to replicate the end-use conditions (% time at elevated temperature in chlorinated environment) under which the tubing can operate and still reach an extrapolated test lifetime of 50 years.

Cost Impact: Will not increase the cost of construction
This proposal has absolutely no impact on the cost of construction and only seeks to clarify requirements within the code.

P117-15 Part II :
P2906.5-MORGAN5533

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: An excessive amount of text is being added to the code but doesn't does add any useful information.

Assembly Action : None

P122-15
605.6, 605.9

Proposed Change as Submitted

Proponent : Ronald George, self, representing self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Revise as follows:

605.6 Flexible water connectors. Flexible water connectors exposed to continuous pressure shall conform to ASME A112.18.6/CSA B125.6. *Access* shall be provided to all flexible water connectors. Compression couplings shall not be used for flexible water connector joints.

605.9 Prohibited joints and connections. The following types of joints and connections shall be prohibited:

1. Cement or concrete joints.
2. Joints made with fittings not *approved* for the specific installation.
3. Solvent-cement joints between different types of plastic pipe.
4. Saddle-type fittings.
5. Compression joints on plastic water distribution piping or flexible connectors.

Reason: Plastic piping with compression couplings have failed on many occasions when there is a seasonal change in the water temperature or domestic hot water application that allows the plastic pipe to soften. During water hammer events from booster pumps cycling on, valves closing or well pumps cycling, the plastic piping can work loose and cause a flood. Plastic pipe and compressin couplings do not make a safe pipe joint.

Cost Impact: Will not increase the cost of construction
This is not a cost issue it is a material issue. Flexible water connectors and plastic piping should not be joined with compression couplings. I have served as an expert witness recently for a significnt number of compression joint failures especially on hot water piping systems.

P122-15 : 605.6-GEORGE5606

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Section 605.6 and 605.9 are duplicated. This would be too stringent for the distribution piping for the balance of the code. The proponent indicated that he failed to put in the proposal "without metal insert stiffeners" to qualify where compression fittings cannot be used.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Ronald George, Plumb-Tech Design & Consulting Services, representing Self (Ron@Plumb-TechLLC.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

605.6 Flexible water connectors. Flexible water connectors exposed to continuous pressure shall conform to ASME A112.18.6/CSA B125.6. *Access* shall be provided to all flexible water connectors. ~~Compression couplings shall not be~~ Where a compression fitting is used ~~for~~ to connect the end of a plastic flexible water connector ~~joints~~ , a stiffener insert shall be installed in the tube end.

605.9 Prohibited joints and connections. The following types of joints and connections shall be prohibited:

1. Cement or concrete joints.
2. Joints made with fittings not *approved* for the specific installation.
3. Solvent-cement joints between different types of plastic pipe.
4. Saddle-type fittings.
5. Compression joints on plastic water distribution piping or flexible connectors where a stiffener insert has not been installed in the tube end.

Commenter's Reason: The Committee is correct that prohibiting compression joints for plastic flexible tubing is overly resistive. Compression joints for plastic water connectors is very common (such as the connector tubes from the stop valves to faucets and water closets).
The problem is that there have been numerous water damage claims from plastic flexible water connectors that slip out of a compression joint because they were not assembled with an insert stiffener fitting in the end of the tube. The insert stiffener holds the outside of the tubing tight against the compression ferrule on the outside of the tubing. Without the insert stiffener in place, the tubing can collapse or flex inward allowing the joint to separate/slip under water hammer conditions, hot water flow or with heat from external heat sources. (adjacent bathroom heaters)
Some water connector manufacturers require the inserts, supplying the inserts with the connector. However, not all manufacturers supply the inserts or mention anything about inserts and, unfortunately, those are the compression joint connections that are failing. Adding this requirement to the code will prevent these water damage events, where in many cases, the insurance companies deny the claims saying the homeowner left the stiffener out intentionally or that the homeowner intentionally loosened the joint and they deny the claim, This causes the homeowner to go to great expenses to try and prove what happened and fight the insurance companies.

P122-15

P130-15

605.14.3, 605.18.3, 605.22.2, 605.23.3

Proposed Change as Submitted

Proponent : John Stempo, Victaulic Company, representing Victaulic Company

2015 International Plumbing Code

Add new text as follows:

605.14.3 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F 1476, shall be made with an *approved* elastomeric seal and other internal components, if applicable, and shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

605.18.3 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F 1476, shall be made with an *approved* elastomeric seal and other internal components, if applicable, and shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

605.22.2 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F 1476, shall be made with an *approved* elastomeric seal and other internal components, if applicable, and shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

605.23.3 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F 1476, shall be made with an *approved* elastomeric seal and other internal components, if applicable, and shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

Reason: There are some types of grooved mechanical joints that utilize internal components other than elastomeric seals. These proposed changes are intended to clarify language in the code to specifically address the use and acceptance of these additional components within a grooved mechanical joint design, if they are *approved*.

Cost Impact: Will not increase the cost of construction
A clarification of what components could be used for sealing in this type of joint will not increase the cost of construction.

P130-15 : 605.14.3-STEMPO3966

Public Hearing Results

Committee Action: Disapproved

Committee Reason: "Other components" seems vague. The elastomeric seal needs approval but these other components don't which seems to allow anything to be installed the joint (without approval).

Assembly Motion: **As Submitted**
Online Vote Results: **Failed**
Support: 23.49% (35) Oppose: 76.51% (114)
Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : John Stempo, Victaulic Company, representing Victaulic Company requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

605.14.3 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F 1476, shall be made with an *approved* elastomeric seal and where applicable, other internal components~~, if applicable, and~~ as provided by the manufacturer. The joints shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

605.18.3 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F 1476, shall be made with an *approved* elastomeric seal and where applicable, other internal components~~, if applicable, and~~ as provided by the manufacturer. The joints shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

605.22.2 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F 1476, shall be made with an *approved* elastomeric seal and where applicable, other internal components~~, if applicable, and~~ as provided by the manufacturer. The joints shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

605.23.3 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F 1476, shall be made with an *approved* elastomeric seal and where applicable, other internal components~~, if applicable, and~~ as provided by the manufacturer. The joints shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

Commenter's Reason: The addition of the words after "other internal components" directly addresses the committee's concern in regard to vague language and thus, will ensure that the "other internal components" are the components provided by the manufacturer and not just any components that an installer might try to include in the joint..

P130-15

P135-15 Part I

605.24.3 (New), 605.9

Proposed Change as Submitted

Proponent : Michael Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservices.com)

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART II IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART I.

2015 International Plumbing Code

Add new text as follows:

605.24.3 Joint between PVC water service and CPVC water distribution. Where a PVC water service pipe connects to a CPVC pipe at the beginning of a water distribution system, the transition shall be by a mechanical fitting, an approved adapter fitting, a transition fitting or by a single solvent-cemented transition joint. A single, solvent cement transition joint shall be in compliance with ASTM F493 and the pipe, fitting, and solvent cement manufacturers' instructions. Solvent cement joint surfaces shall be clean, free from moisture and prepared with an approved primer. Solvent cement conforming to ASTM F493 shall be applied to the joint surfaces and the joint assembled while the cement is wet.

Revise as follows:

605.9 Prohibited joints and connections. The following types of joints and connections shall be prohibited:

1. Cement or concrete joints.
2. Joints made with fittings not *approved* for the specific installation.
3. Solvent-cement joints between different types of plastic pipe except as provided for in Section 605.24.3.
4. Saddle-type fittings.

Reason: Transitions being made from PVC service to CPVC water distribution systems is common, and solvent cementing for this single transition application should be an option.

Cost Impact: Will not increase the cost of construction
None.

P135-15 Part I : 605.24.3 (New)-CUDAHY5893

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: The committee is not certain that the solvent cement standard covers joining two different types of piping.

Individual Consideration Agenda

Public Comment 1:

Proponent : Michael Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservices.com) requests Approve as Submitted.

Commenter's Reason: We stand on the original proposal statement. Transitions being made from PVC service to CPVC water distribution systems is common, and solvent cementing for this single transition application should be an option.

P135-15 Part I

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

P135-15 Part II

P2906.17.2 (New)

Proposed Change as Submitted

Proponent : Michael Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservices.com)

2015 International Residential Code

Add new text as follows:

P2906.17.2 Joint between PVC water service and CPVC water distribution Where a PVC water service pipe connects to a CPVC pipe at the beginning of a water distribution system, the transition shall be by a mechanical fitting, an *approved* adapter fitting, a transition fitting or by a single solvent-cemented transition joint. A single, solvent cement transition joint shall be in compliance with ASTM F493 and the pipe, fitting, and solvent cement manufacturers' instructions. Solvent cement joint surfaces shall be clean, free from moisture and prepared with an approved primer. Solvent cement conforming to ASTM F493 shall be applied to the joint surfaces and the joint assembled while the cement is wet.

Reason: Transitions being made from a building's PVC service to CPVC water distribution systems is a fairly common occurrence, and using solvent cementing for this single transition application should be an option.

Cost Impact: Will not increase the cost of construction
This proposal allows for an optional method of joining not in this code. The option is not requiring that this method be chosen. Thus the code with this proposal added will not cause the cost of construction to increase.

P135-15 Part II : P2906.17.2 (New)-CUDAHY4670

Public Hearing Results

Part II

Committee Action: Approved as Submitted

Committee Reason: The committee agreed with the proponent's published reason statement.

Assembly Action : None

P136-15
604.1, Chapter 14

Proposed Change as Submitted

Proponent : Ronald George, Self; Plumb-Tech Design & Consulting Service LLC; www.Plumb-TechLLC.com; www.LegionellaPrevention.org, representing Self; Plumb-Tech Design & consulting Services LLC (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Revise as follows:

604.1 General. The design of the water distribution system shall be in accordance with ASHRAE 188 and shall conform to *accepted engineering practice*. Methods utilized to determine pipe sizes shall be *approved*.

Add new standard(s) as follows:
ASHRAE 188 - DRAFT_4th Public Review_09262014 Legionellosis: Risk Management for Building Water Systems

Reason: There are many design considerations in the ASHRAE standard that will help minimize Legionella bacteria growth in building water systems which can lead to Legionnaires Disease when water droplets are aerosolized from shower heads, and other building water systems and fixtures that aerosolize water droplets. Following the ASHRAE Standard will minimize the risk og a Person contracting Legionnaires' disease.

Bibliography: www.LegionellaPrevention.org
www.Plumb-TechLLC.com

Cost Impact: Will increase the cost of construction
The cost of construction of the plumbing system to eliminate dead legs and provide other design concepts to address temperature and stagnation is estimated to be about 10 - 15 percent more to comply with this standard, however it will provide for hygienic system designs that will minimize legionella bacteria growth and help prevent Leginnaires Disease. See www.LegionellaPrevention.org.

Analysis: A review of the standard proposed for inclusion in the code, ASHRAE 188, with regard to the ICC criteria for referenced
standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P136-15 : 606.8 (New)-GEORGE5211

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The standard is in draft form and cannot be approved for inclusion into the code at this point in the code development process. This draft standard appears to be mostly an operational standard and not a construction

standard.

Assembly Action : None

Analysis. For staff analysis of the content of ASHRAE 188 (SPC 188) with regard to the ICC criteria for referenced standards (Section 3.6 of CP #28), please visit: http://www.iccsafe.org/wp-content/uploads/2015-Proposed-Standards-Group-A-Final.pdf

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Individual Consideration Agenda

Public Comment 1:

Proponent : Ronald George, representing Plumb-Tech Design & Consulting Services LLC (Ron@Plumb-TechLLC.com) requests Approve as Submitted.

Commenter's Reason: The reason this code change was turned down was stated that "The standard is in draft form and cannot be approved for inclusion into the code at this point in the code development process." The standard has now been published.

Public Comment 2:

Proponent : Steven Ferguson, representing American Society of Heating Refrigerating and Air-Conditioning Engineers (sferguson@ashrae.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

604.1 General. The design of the water distribution system shall be in accordance with ASHRAE 188 and shall conform to *accepted engineering practice*. Methods utilized to determine pipe sizes shall be *approved*.

Modify standard(s) as follows:

Commenter's Reason: The reason for disapproval of this proposal at the committee hearings was
"The proposed standard is in draft form and not likely to be completed by the Public Comment Hearings. The content could change before the draft is finalized."

The Staff analysis on this standard was "Appears to be written in enforceable language. No proprietary references were noted. Consensus process stated."

In addition to the original proponent's reason statement. ASHRAE Standard 188 was developed with the intent of providing code officials and building operators information on how to manage the risk of legionellosis. ASHRAE Standard 188 was published on June 26, 2015, and is now publicly available as a final, published ANSI Standard. No substantive changes were made from the version previously provided to ICC for review.

For more information on the standard, go here:
http://www.techstreet.com/ashrae/products/1897561

P139-15
607.2.1.2

Proposed Change as Submitted

Proponent : Ronald George, Self; Plumb-Tech Design & Consulting Services LLC, representing Self; Plumb-Tech Design & Consulting Services LLC. (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Delete without substitution:

~~**607.2.1.2 Demand recirculation controls for distribution systems.** A water distribution system having one or more recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe shall be a demand recirculation water system. Pumps shall have controls that comply with both of the following:~~

1. ~~The control shall start the pump upon receiving a signal from the action of a user of a fixture or appliance, sensing the presence of a user of a fixture, or sensing the flow of hot or tempered water to a fixture fitting or appliance.~~
2. ~~The control shall limit the temperature of the water entering the cold water piping to 104°F (40°C).~~

Reason: Demand recirculation systems create a cross nonnection between hot water and cold water systems.

Cost Impact: Will not increase the cost of construction
If you do not have to install demand recirculation controls proximity sensors, electrical wiring, transformers, control wiring, circulating pumps, etc. it will save money. This will not increase the cost of construction when the cost of previously heated warm water is dumped down the drain every time someone needs cold water. Th hot water will also promote bacteria growth in the piping system which will lead to medical expenses and illness, doctors fees, lawyers fees, and the cost of labor, materials to make repairs to the plumbing system when it is discovered this system does not provide cold water to the fixture for brushing teeth, drinking or any other uses for cold water The cost to make corrections in order to get cold water from the fixture should be factored in.

P139-15 : 607.2.1.2-GEORGE5210

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is more of a health and safety issue versus energy savings. The committee prefers the langauage currently in the code.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Ronald George, representing Self (Ron@Plumb-TechLLC.com) requests Approve as Submitted.

Commenter's Reason: The plumbing code has recently Accepted "Cross Connections" as an "Acceptable Practice" The last code development cycle for the International Codes brought about a code change that was submitted to the model codes by a manufacturer of a unique product that has filled an aftermarket niche. An entrepreneur decided to address the problem of dumping water down the drain while waiting for hot water to arrive at a fixture. Since this code change went into the code, just about every pump manufacturer has jumped on the band wagon to sell these small pumps at significant prices. Instead of requiring a dedicated hot water return piping system, the proponents solution to the problem was simply to add a small circulating pump under the lavatory or sink and connect it to both the hot and cold water lines to the fixture and pull hot water to the fixture through the hot water pipe and utilize the cold water pipes as a hot water return path back to the water heater. (This only works where there are no check valves in the hot water system)
When I first heard of the concept of circulating hot water back through the cold water piping, I was slightly amused and I was well aware of the fact that it was an obvious cross connection along with a health and safety issues. The hot water in the cold water piping can create a scalding hazard and if it is hot or warm water it can lead to accelerated water treatment chemical dissipation and there will be an increase in the growth of bacteria and other organic pathogens in the water which creates a biological and potentially a Legionella hazard. When I first saw the proposal, I was pretty sure that the plumbing industry was not going to accept circulating hot water in the cold water piping because that is a direct cross-connection and the code prohibits cross-connections. I thought the backflow prevention folks would surely see this and step up to address the issue at the code hearings.

Unfortunately, during the code hearing testimony, there was little or no opposing testimony from the backflow industry on this issue and the proposed code change was promoted as a "water saving" and "energy saving" measure to reduce the waste of water poured down the drain and to reduce the energy used to heat that water. It seems like green marketing hype had an effect on code development. They bought it and the code change passed. It seems you can call something green and people seem to think green is good so they blindly support it. Anyone can propose a code change and sometimes they don't understand all of the consequences of their proposals. This sometimes leads to code change proposals that are well intentioned, yet unsanitary and unsafe. If a presentation is done well, it is possible to convince enough code committee members to support a code change that is in conflict with other sections of the code because it sounded good at the time.

The code change to recirculate hot water through the cold water pipes was presented in the name of energy and water conservation. I'm the number one advocate for energy conservation and water conservation, but only if it does not create a health and safety issue. It appears the code change for circulating hot water back to the water heater passed because many of the code committee members were thinking of their personal experiences of waiting for hot water in their home and they were not presented with facts about the potential health and safety consequences to the public in larger buildings. I think this system is great for an individual homeowner who knowingly chooses to install this system in a private home and live with the health and safety consequences of such a decision. It would be appropriate for the International Residential Code (IRC), but not the IPC.

I do not believe we should allow this as a design option for commercial buildings and multi-family buildings. We already have a way for hot water to be maintained at the fixture by installing a dedicated hot water return piping system or providing temperatur maintenance cables. The codes have accepted this cross-connections as an acceptable design practice.

I submitted code changes (P102-15 & P-139-15) to undue the code change from the last cycle. I'm hoping there will be some comments from the backflow prevention

industry, Engineers and some common sense employed to correct this terrible mistake by well-intentioned individuals that have created a serious health and safety issue with the code change last cycle. The following are reasons why we should not circulate hot or tempered water through the cold water distribution pipes:

1. Circulating hot water in the cold water pipes can scald someone if the temperature sensor fails or is disconnected or not installed. People will not expect to find hot water in the cold water pipes. This is a form of cross connection that backflow protection language in the codes was specifically intended to prevent. The proponent has indicated there can be a thermostat that shuts-off the circulator when the water temperature gets to a given temperature, but that is a manufacturing option in many catalogs and not mandatory on all devices that are sold for this purpose. There is no language in the code change that mandates a maximum or minimum temperature. As the code change is written, there is no temperature limit for hot water that can be circulated through the cold water piping. One manufacturer states his device has a temperrature limit, but not all manufacturers have a maximum temperature limit.

2. If someone in a high rise apartment building has a bathroom located a considerable distance from the circulated main they decide to install one of these circulator pumps under a lavatory or sink, the code will allow them and then everyone else in the building will have hot water return water flowing through their cold water piping. In some of these high rise buildings there are different pressure zones that flow through pressure reducing valves or through booster pumps. Now with this code change the circulator pump will be pushing hot water back against a pressure reducing valve or a booster pump on the cold water system. These systems should be limited to single family homes only. They should not be allowed in the International Plumbing Code, they should be relegated to the international residential code where the homeowned will have to deal with the consequenses of their choice. I dont want someone in a building deciding I habve to have hot water in my cold water pipes. If circulating hot water though the cold water pipes is allowed people in all other floors or areas of large buildings will be drinking and brushing their teeth with hot or warm water that has metals from dissolved anode rods and elevated bacteria levels.

3. Recirculating hot or warm water in the cold water piping will increase bacteria growth and biofilm formation in the cold water piping.

4. Hot water in the cold water piping system will promote accelerated dissipation of water treatment chemicals - The act of recirculating the hot water back into the cold water system is actually holding the water and circulating it in the piping system longer than it normally would have been. With the increase in low-flow and ultralow-flow fixtures associated with water conservation measure, the water treatment chemicals will dissipate at the same rate while the flow rate goes down.

5. Reducing the water flowing out of and into the water system promotes stagnation. Lack of flushing water flow causes the water to remain in the piping system for longer periods of time. This contributes to water treatment dissipation and will lead to an increase in bacteria levels in the domestic water system and will contribute to legionella bacteria and other organic pathogen growth in the domestic water systems.

6. This allows the water treatment chemicals to dissipate over time and when the water is circulated though the water heater, the heat accelerates the dissipation rate of the water treatment chemicals. The water is held in the plumbing system for longer periods of time contributing to stagnation and loss of water treatment chemicals and less water in the drain to contribute to drain line transport.

7. If someone in any commercial building installs one of these circulating pumps that circulate through the cold water pipes, the people in other areas of the building that want or expect cold water will be receiving hot or warm water when the draw water from a tap for drinking or cooking. I would not be happy if the electric water cooler or drinking fountain in my office was receiving hot or warm water that is injected into the cold water pipes from a circulation pump under a sink in a tenant space down the hall. I will be drinking hot or warm water from the drinking fountain and if I have an electric water cooler, my electric bill is going to go up because now the refrigeration unit on my electric water cooler will be cooling hot or warm water

instead of cold water.

8. The hot water in the cold water pipes will have dissolved metals in the hot water. This is because all tank type water heaters have magnesium or aluminum sacrificial anode rods in the tank that corrode and dissolve metals into the water to protect the tank from corrosion. These dissolved metals are present in hot water tanks, but typically not in the cold water piping. This is why all cooking shows recommend you fill your cooking kettles with cold water. It is for this same reason I don't want the tenant on another floor in a condo building being allowed to circulate hot water with dissolved metals into my cold water piping on another floor for drinking and cooking water.

P139-15

P144-15

607.6 (New)

Proposed Change as Submitted

Proponent : Ronald George, Self; www.ScaldPrevention.org; www.LegionellaPrevention.org, representing Self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Add new text as follows:

607.6 Master Temperature Actuated Mixing Valve. All commercial water heaters shall have the ability to heat water to a temperature of not less than 180°F (82.2°C). The water heaters shall be designed to be operated to provide for a stored water temperature of not less than 140°F (60°C) to minimize Legionella bacteria growth. A master temperature actuated mixing valve conforming to ASSE 1017 shall be installed on the hot water discharge pipe of a water heater to stabilize the hot water distribution system delivery temperature at the temperature required for hot water return temperature of not less than 124°F (51.1°C) to minimize Legionella bacteria growth.

Reason: This code change is to provide hot water system controls to minimize scalding and control Legionella bacteria growth.

A Hot Water System Balancing Act – Scald Prevention vs Legionella Prevention

By: Ron George, CPD, President, Plumb-Tech Design & Cons. Services LLC.
Web site: www.Plumb-TechLLC.com

Plumbing Engineer Magazine, Mar. 2013

Plumbing design professionals and contractors are faced with many challenges when designing, installing or maintaining domestic hot water systems. Two of the more important challenges of a domestic hot water system are providing hot water for bathing and washing that will not cause scald injuries and hot water that is at a temperature high enough to prevent Legionella bacteria growth. I call it the *hot water system balancing act*. Scalding and Legionella account for a significant percentage of the litigation cases associated with plumbing systems.

Many plumbing industry groups have addressed the scalding issue and it is documented in the plumbing codes that the maximum hot water temperature to prevent scalding is 120 degrees Fahrenheit (F). The minimum temperature to prevent Legionella bacteria growth at any point in the domestic hot water supply or return piping system should be 124 degrees F according to ASHRAE. The 124 degree temperature comes from the new ASHRAE Guideline 12 which is nearing completion for publication. (See Figure 2) These two temperatures seem conflict with each other, but they can actually work together. The plumbing system can be designed to store and distribute hot water at higher temperatures and deliver the hot water from the showers and bathtub/shower fixtures at safe temperatures of 120 F or less by simply adjusting the limit stops on the tub/shower valves to limit the hot water to 120 F or less. Many design professionals, contractors, maintenance personnel, tenants and building owners may not be aware of the temperature limit stop feature on all code compliant shower valves. The manufacturers publish information on how to set the limit stop for shower valves. If the shower valve is an older shower valve without limit stops, it should be replaced or a thermostatic mixing valve conforming to ASSE 1070 should be installed on the hot water supply branch to temper the water to a maximum of 120 F or an ASSE 1062 device could be used to prevent scalding. Code compliant shower valves conform to ASSE 1016 or CSA B125.1 which were recently harmonized with ASME in the standard titled: *ASSE 1016/ASME A112.1016/CSA B125.16, Performance requirements for automatic compensating valves for individual showers and tub/shower combinations*. The temperature flowing to the shower valves can be as high as 140 degrees F and the shower valves should have the maximum temperature limit stops adjusted to limit the temperature leaving the shower valve to a maximum of 120 F. In addition the valves must be seasonally adjusted to account for the changes in the incoming cold water temperature which can affect the mixed water temperature.

Maximum Hot Water Temperature to Prevent Scalding

I have served on many industry committees dealing with hot water system code requirements, hot water system design standards and product standards related to domestic hot water systems devices for temperature control and scald prevention. There has been consensus in all of these committees that the maximum safe hot water delivery temperature for a shower or bathtub is 120 degrees Fahrenheit to prevent scalding with a few exceptions for lower temperatures for bidets and emergency eye wash fixtures. (See Figure 1 - Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children)

There were discussions in a plumbing code ad-hoc committee on temperature limits for the hot water system where everyone agreed the maximum safe temperature was 120 F. The ASPE Hot water committee dealing with a proposed standard for temperature limits in hot water systems also agreed the maximum safe hot water temperature to prevent scalding is

120 Fahrenheit. Several ASSE working groups that I have served on dealing with hot water temperature controls have all have discussed the reaction time of bathers and they have taken into consideration that children, the elderly and people with disabilities usually take longer to get out of harm's way if the water suddenly gets hot and they agreed 120 Fahrenheit is the maximum safe hot water temperature that a valve should deliver. At 120 F it takes about 80 seconds to develop a second degree burn in a child and it takes about 8 minutes to develop a second degree burn in an adult. (See Figure 1) The 120 Degree F temperature limit gives bathers or users an adequate amount of time to get out of harm's way before an irreversible scald burn injury can occur. Each of these committees looked back to the data that was the result of burn studies done by Dr. Moritz and Dr. Henrique's at Harvard Medical College in the 1940s. The burn studies were done using baby pigs that had skin thicknesses similar to that of adult males. The studies exposed the pig's skin to various temperatures of hot water for various periods of time and the severity of the burns were studied and recorded. These were the studies used to develop the time and temperature exposure charts. There have been numerous white papers, seminars, and reports since then discussing the fact that burns can occur quicker than those recorded in the Moritz & Henrique's studies for adult males. The skin is thinner for children and the elderly and the amount of time to receive an irreversible 2nd degree burn injury is less because their skin is thinner. Many of the white papers use the Moritz and Dr. Henrique's original burn studies and they use a ratio of the skin thickness to come up with burn times for thinner skin of children and the elderly. Children, the elderly and handicapped are also slower to react because it takes them more time to realize what is happening and try to react to get out of harm's way. Someone once told me an apartment complex was not intended for children or the elderly. I said everyone grows old and children often come visit so we need to consider prevention of scalds to children, the elderly and people with disabilities more so than burns to adults because burns can occur quicker for those groups.

The PIEV Theory for Reaction Time

There is a PIEV theory relates to reaction time. The PIEV theory is most commonly used to address braking distance in automobile accidents. It addresses the amount of time it takes a driver to sense a problem and decide to react, then the reaction time is added to the braking time for the total distance that a car travels before stopping. The PIEV theory can also apply to reaction times for a bather with respect to hot water scalds.

PIEV relates to the amount of time it takes a person to react to a hazard. **PIEV** means - ***Perception***, ***Intellection***, ***Emotion*** and ***Volition***. It is usually referred to as the PIEV theory. Before we recognize and react to a hazard, four specific areas of activity need to be processed by the brain for the muscles to react. Those processes are:

1. **Perception** - We need to perceive or gain a *Perception* of a hazard. There can be delays in the perception with limitation in sight, sound, feeling, or any other of our senses.

2. **Intellection** - We go through a period called, *Intellection* or the act or process of using the intellect by thinking or reasoning. The bather must determine if the hazard is legitimate and deciding either move out of the way of the hazard or eliminate the hazard by adjusting the controls or in some cases where the bather may be sitting out of the reach of the controls the bather may choose to pull the shower curtain in front of them. If the adjustment of the controls is the choice one must decide which control to turn and try to remember which way to turn each control to adjust the temperature or turn the water off in order to eliminate the hazard. If a wrong choice is made during this process it could compound the situation by making the water even hotter. I travel a lot and I often find that shower controls can be very confusing with respect to how to adjust the controls. I still find two handle shower controls that do not meet code requirements. This is critically important when there is no temperature

limit on the shower controls. For example if the shower has a two-handle shower valve and 160 degree hot water is supplied to the system, then turning of the cold water first could lead to instant scalding injuries. Turning down the hot water to 120 F or below creates a system where it could incubate Legionella Bacteria to very high levels.

3. ***Emotion*** - There is an *Emotion* or evaluation factor which is defined as a conscious mental reaction (as anger or fear) subjectively experienced as strong feeling usually directed toward a specific object and typically accompanied by physiological and behavioral changes in the body with respect to deciding or assessing how we want to react. A person with reduced mental capacity or someone that is just very old will take longer to process this information and ultimately decide to react.

4. **Volition** - There is the physical *Volition* or deciding/choosing to act and acting. In the case of braking distance it is when the choice is made to move the foot from the gas pedal to the brake pedal and pressing on the brake pedal. This can be related to the time the bather chooses to adjust the control, and they move their hand to the shower control valve, plus the time to rotate or re-adjust the shower valve plus the time from the adjustment until the water temperature changes coming out of the shower head. Often it can take as much as 3-5 seconds to re-adjust the shower head and another few seconds until the water temperature changes coming out of the shower head. For ultra-low-flow (ULF) showers the delay from the time of the adjustment of the shower valve until the water temperature changes coming out of the shower head can be even longer. So burns can become more severe with ULF shower heads. This is one more area where water conservations measures can unintentionally make plumbing systems less safe.

As the temperature of the water increases this PIEV reaction time becomes more important. Using a bathtub/shower controller with a single handle would reduce the mental processing time and reduce the possibility of making an error when turning off the water. As Figure 1 shows the higher the temperatures get, the quicker the burns can occur. within seconds or less and the degree and severity of the burn can be affected by this reaction time.

As you can see by the chart in Figure 1, if the water is at 140 F it will take about 0.8 seconds for a child to receive a 2nd degree irreversible burn injury and it will take about 5.6 seconds for an adult male to receive an irreversible burn injury at 140 degrees F. Everyone else will fall somewhere in between. An adult will often find it very difficult to react to a sudden change in temperature within five (5) seconds. If the shower head is an Ultra-Low-Flow (ULF) shower head the delay can be several seconds longer before the water temperature is reduced because the mixed water temperature must evacuate or flush out the hot water in the pipe riser from the shower valve to the shower head. There is basically very little or no time to react at higher temperatures. For a typical adult that is alert and aware the PIEV theory shows it can take well over five (5) seconds to react to a sudden burst of hot water in a shower. For an elderly person or a small child that is confused it could take several minutes or more before they are able to react and adjust the controls or get out of harm's way. There has been a lot of information that suggests reducing the domestic hot water temperature to 120 F or less as it flows from the fixtures will minimize scalding and allow most people to react or get out of harm's way before a scald injury occurs.

Reducing the water temperature flowing from the fixture can be done in several ways by:

1. Reducing the hot water temperature at the fixture by adjusting the maximum temperature limit-stop on the shower valve. (The best way)

2. Using local mixing valves conforming to ASSE 1070 to reduce the hot water temperature flowing from a faucet.
3. Reducing the temperature at the source (Water Heater) with the use of a master mixing valve or temperature actuated mixing valve conforming to ASSE 1017.
4. For existing non code compliant shower or tub/shower installations, Two handle tub/shower valves without a maximum temperature limit adjustment) an ASSE 1062 valve could be used. An ASSE 1062 valve is a Temperature Actuated Flow Reduction (TAFR) valve. It looks like a chrome pipe coupling and it screws on between the shower head and the shower arm. Other models screw into a tub spout or onto a sink faucet in place of the aerator. If the water flowing from fixture exceeds about 117-120 degrees Fahrenheit the TAFR valve will shut the flow of water down to just a trickle so that scalding hot water does not spray onto the bather. It can be reset by adjusting the fixture control valve to a cold water setting and when the cold water reaches the valve it will reset and begin flowing again. This can be a bit of a nuisance in buildings where the hot water temperature is erratic, but it is an inexpensive way to provide protection against scald injuries in older buildings without code compliant shower valves.

Minimum Water Temperature to Prevent Legionella Bacteria Growth
Recently the members of the ASHRAE committee for *ASHRAE Guideline 12 - Prevention of Legionellosis Associated with Building Water Systems* recommended a change to the next edition of the guideline to require a minimum hot water temperature of 124 degrees Fahrenheit in the Hot Water Return (HWR) piping and a minimum hot water storage temperature of 130 F in circulated water heaters and a minimum of 140 F in uncirculated water heaters. This is because they have realized hot water temperatures in the ideal growth range have a lot to do with the Legionella bacteria levels on hot water systems. The new ASHRAE Guideline 12 will bring hot water system designs into alignment with what the ASPE Research Foundation's recommendations were in a white paper published in 1988. Many plumbing engineers have been following those recommendations for years. The ASPE research paper called for storing hot water at 135 to 140 degrees Fahrenheit and delivering it from the fixtures at no more than 120 degrees Fahrenheit. In the near future the ASHRAE standard titled ASHRAE 188 - *Prevention of Legionellosis Associated with Building Water Systems* which references the ASHRAE Guideline 12 will be published as an industry standard and it may even be adopted in the codes. In either case it set the industry standard for hot water system design and it will change how some hot water systems have been designed over the years. Hot water systems will now require storage temperatures high enough to prevent Legionella Bacteria Growth. So simply setting the thermostat to 120 F to prevent scalding will not be possible. (See: Figure 2 - Effects of Water Temperature on Legionella Bacteria and see: Legionella articles in December 2012 and Jan 2013 issues of Plumbing Engineer Magazine for more information and facts about Legionnaires Disease)

If you follow the new ASHRAE Standard 188 and the soon to be published guideline 12, you will find you should not use the thermostat on a water heater to simply adjust it to 120 degrees Fahrenheit to prevent scalding. This is already not allowed in the two model plumbing codes, however there are some local codes such as the State of North Carolina plumbing code that, as this writing, allow this dangerous practice. The minimum storage temperature required in a water heater will soon be 130 F for circulated heaters and 140 F for uncirculated heaters.

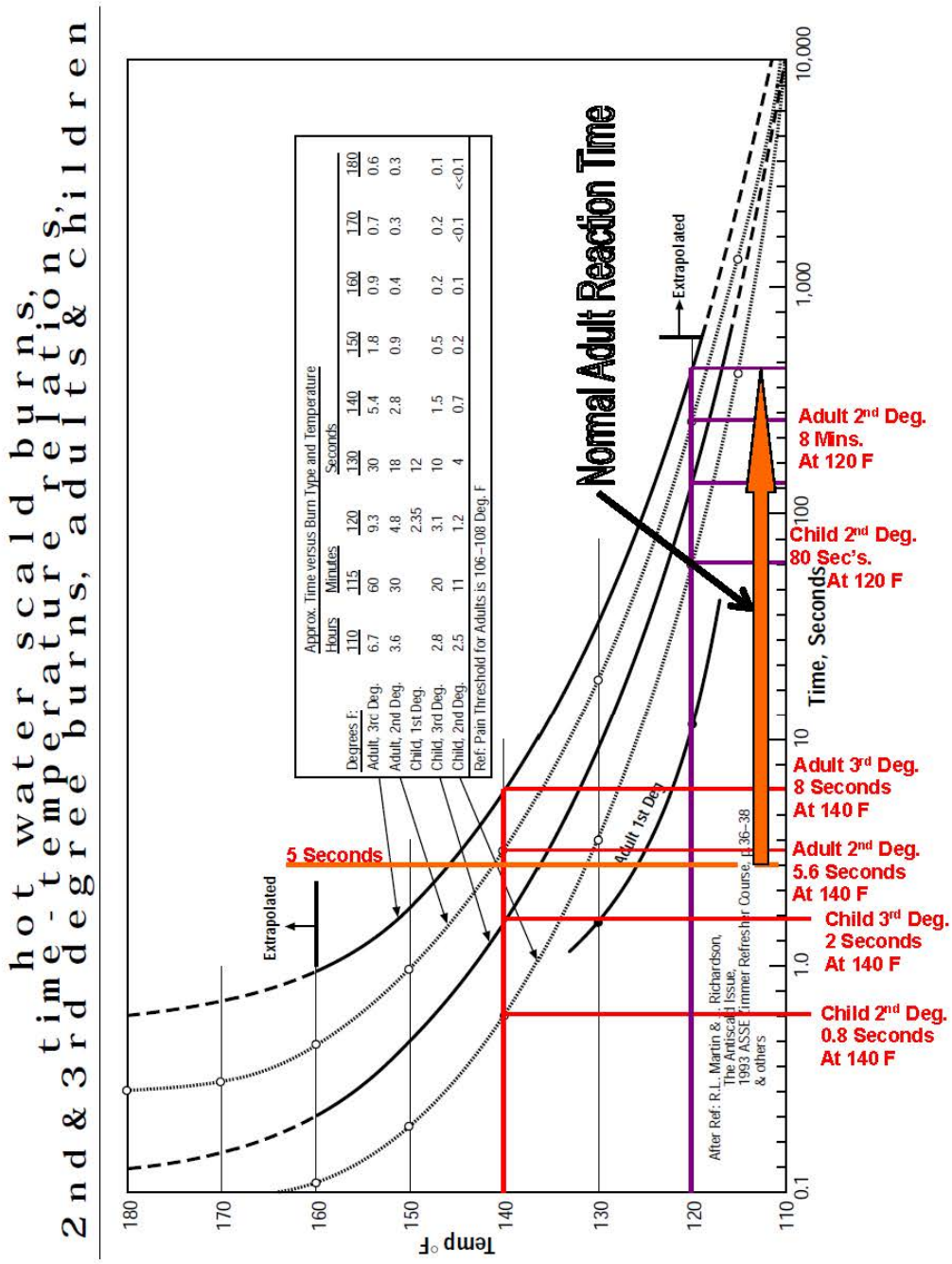
Water Heater Thermostats

The water temperature flowing from the fixtures should not be reduced to 120 degrees Fahrenheit by adjusting the water heater thermostat for scald prevention. The water heater thermostat should never be used to try and control the hot water system delivery temperature. The thermostat is located in the bottom of the water heater and is intended to only sense the incoming cold water and anticipate the need for hot water by turning the burner "ON" and "OFF". There are too many variables that can allow the hot water to exceed the water heater thermostat setting. Intermittent, short usage of hot water can cause the water heater burner to cycle on even when the hot water at the top of the water heater is hotter than the thermostat setting. This causes the water heater to overheat the hot water at the top of the water heater. In some cases the hot water can be as much as 30 degrees or more, higher than the thermostat setting on the water heater. This is why the thermostat on the water heater should not be used as a system temperature controller for scald prevention.

Energy Conservation and Bacteria Growth on Hot Water Systems.
There have been numerous web sites, radio spots, print materials and other well intentioned people that suggest turning the water heater down to 120 degrees Fahrenheit to save energy and they usually discuss the added side effect of minimizing scalding. These suggestions are wrong for many reasons because the thermostat on the water heater cannot accurately control the outlet temperature of the water heater, Low storage temperatures also create a shortage of hot water, low storage temperatures can allow condensing conditions in heaters that are not designed for condensing which can lead to heat exchanger corrosion and it creates storage temperatures that are ideal for legionella bacteria growth. This is another example of energy conservation practices making a hot water system less safe. Safety should trump efficiency! There are other ways to prevent scalding without turning down the water heater thermostat. I have also heard of many healthcare facilities eliminating hot water tanks and installing instantaneous water heaters in a misguided effort to minimize Legionella bacteria growth in hot water tanks. It's not the tank it's the storage temperature. This is reaction to a problem that often creates other problems. (See Figure 2)

Master Thermostatic Mixing Valves
The ASHRAE Guideline 12 recommendations do not mandate a master thermostatic mixing valve for a hot water system. Although one could be installed to allow water temperatures to be stored at slightly higher temperatures and the hot water could be distributed at a stable temperature that assures a minimum of 124 degrees F on the hot water return prior to the hot water tank connection. These new temperature requirements will undoubtedly mean we need to have a temperature gauge on the hot water return piping, the hot water supply piping leaving the water heater and on the piping leaving a mixing valve if one is installed. By providing the temperature gauges the maintenance personnel can monitor the entire hot water distribution system so that it can be hot enough to prevent legionella bacteria growth.

It's is a balancing act to try and keep from scalding someone or giving them Legionellosis. If the hot water system temperatures are maintained at a minimum of 124 F in the hot water return, no less than 130 F in a circulated storage tank and no less than 140 F in an uncirculated storage tank Legionella growth will be minimized. If temperature limit stops are utilized to keep shower and tub/shower water from exceeding 120 F the system will not present a scald hazard. Make sure your plumbing designs include the *hot water system balancing act.*



Approx. Time versus Burn Type and Temperature											
	Hours	Minutes		Seconds							
Degrees F:	110	115	120	130	140	150	160	170	180
Adult, 3rc Deg.	6.7	60	9.3	30	5.4	1.8	0.9	0.7	0.6
Adult, 2nd Deg.	3.6	30	4.8	18	2.8	0.9	0.4	0.3	0.3
Child, 1st Deg.			2.35	12					
Child, 3rd Deg.	2.8	20	3.1	10	1.5	0.5	0.2	0.2	0.1
Child, 2nd Deg.	2.5	11	1.2	4	0.7	0.2	0.1	<0.1	<<0.1
Ref: Pain Threshold for Adults is 106–108 Deg. F									

A Seminar and Technical Paper for the 25-28 Oct. 98 Annual ASPE Meeting at the Indianapolis Convention Center in Indianapolis, Indiana. Reprinted by Watts Regulator Company with permission of Dr. D. Bynum Jr.

Figure 1 – Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children.
(Notes By: Ron George, CPD, See: www.ScaldPrevention.org)

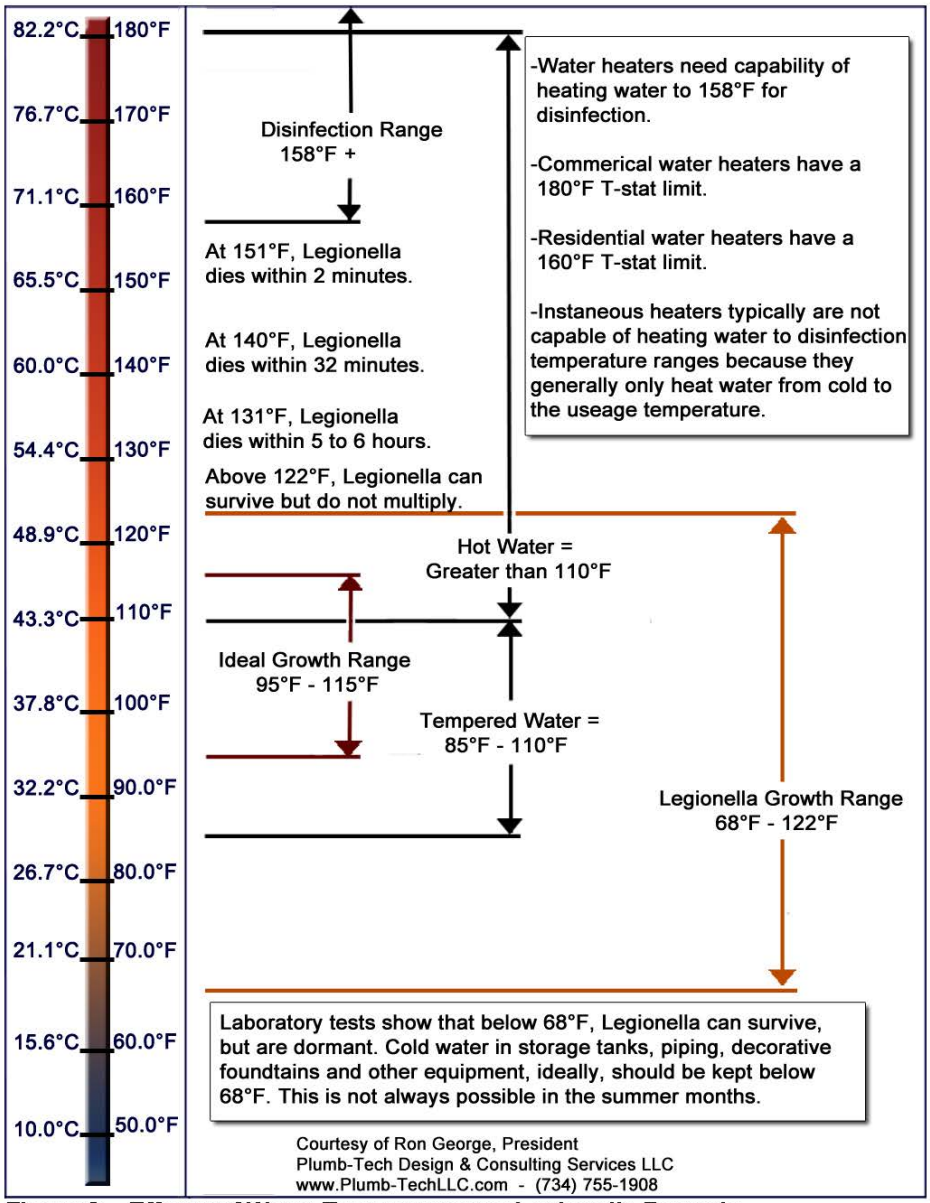


Figure 2 – Effects of Water Temperature on Legionella Bacteria
(Source: www.LegionellaPrevention.org)

Bibliography: www.ScaldPrevention.org
www.LegionellaPrevention.org

Cost Impact: Will increase the cost of construction
This will slightly increase the cost of construction, but it will frovide significant health and safety benifits of controlling Legionella and minimizing scalding by stabilizing system temperatures with a mixing valve.

P144-15 : 607.6 (New)-GEORGE5588

Public Hearing Results

Committee Action: Disapproved

Committee Reason: These requirements are already in the standards for water heaters and do not need to be in the code.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Ronald George, representing Self (Ron@Plumb-TechLLC.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

607.6 Master Temperature Actuated Mixing Valve. ~~All commercial water heaters shall have the ability to heat water to a temperature of not less than 180°F (82.2°C). The water heaters shall be designed to be operated to provide for a stored water temperature of not less than 140°F (60°C) to minimize Legionella bacteria growth.~~ A master temperature actuated mixing valve conforming to ASSE 1017 shall be installed on the hot water discharge pipe of a– storage type water heater ~~to stabilize the hot~~ or steam fired instantaneous water ~~distribution system delivery temperature at the temperature required for hot water return temperature of not less than 124°F (51.1°C)~~ heater. ~~to minimize Legionella bacteria growth.~~

Commenter's Reason: The language with requirements from the standard was removed. This modification is clear and easily enforcible. This code language will help provide scald protections and system temperature stability.

P144-15

P145-15

607.6 (New), 607.7 (New)

Proposed Change as Submitted

Proponent : Ronald George, Self, www.scaldprevention.org; www.Plumb-TechLLC.com, representing Self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Add new text as follows:

607.6 Balancing of multi-branch hot water circulating systems Where there is more than one hot water return branch in a hot water circulating system having one circulating pump, the circulating pump shall be sized to deliver the required flow and head for all branches. The required flow in gallons per minute (liters per second) to maintain the desired hot water temperature for each branch shall be calculated. Each branch shall have a balancing valve that is field-adjusted and set to the required calculated flow. A check valve shall be located downstream of each balancing valve to prevent crossflow between branches.

607.7 Maximum velocities for hot water return piping The water velocity in hot water return piping sytems shall be limited to prevent water hammer and errosion of piping. Where the water temperature is 140°F (60°C) or less, the water velocity shall not exceed 5 feet per second (3 meters per second). Where the water temperature exceeds 140°F (60°C), the water velocity shall not exceed 2.5 feet per second (1.5 meters per second).

Reason: No balancing requirement is in the plumbing code. Many larger buildings are experiencing problems because balancing is not required.
When balancing is not done properly the velocity in some sections of pipe can become excessive. Balancing valves have a flow adjustment that allows you to read or set the flow at each balancing valve. If the flow in GPM is known based on the balancing valve setting or the flow rate of the circulating pump can be used in smaller systems. Where the flow in GPM is known and the pipe size is known, the velocity in feet per second can easily be determined by looking at any pipe sizing chart or table.

Bibliography:

http://www.copper.org/publications/pub_list/pdf/copper_tube_handbook.pdf
See Page 11 of the Copper Tube Handbook for velocity limitations. These velocity limitations should apply to PEX piping sytems with brass fittings also.

http://www.pdionline.org/storage/publications/PDI-WH-201.pdf

See the water pipe sizing chart on page 31 of the PDI WH 201 standard that is free to download. It lists the Pipe size, flow in GPM and flow Velocity in Feet Per Second.

Cost Impact: Will increase the cost of construction
balancing has always been required for the system to operate properly, but it has never been required in the code. There will be a slight cost to balance the HW system, but now they will perform better because there never has been a requirement for balancing.

P145-15 : 607.6 (New)-GEORGE5595

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Limiting the velocities in the piping to the velocity limit for copper piping is restrictive for other piping materials. Section 607.6 limits designer flexibility in system design.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Ronald George, representing Self (Ron@Plumb-TechLLC.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

607.6 Balancing of multi-branch hot water circulating systems Where there is more than one hot water return branch in a hot water circulating system having one circulating pump, the circulating pump and piping shall be sized to deliver the required flow and head for all branches in accordance with ASPE, ASHRAE or other engineered recirculation system sizing methods. The required flow in gallons per minute (liters per second) to maintain the desired hot water temperature for each branch shall be calculated. Each branch shall have a balancing valve that is field-adjusted and set to the required calculated flow. A check valve shall be located downstream of each balancing valve to prevent crossflow between branches.

Commenter's Reason: This revision eliminates the velocity issues abd it add a source for determining the proper flow rates for each branch and corresponding size based on friction losses for hot water return piping systems.

P145-15

P147-15
608.1.1 (New)

Proposed Change as Submitted

Proponent : Michael Moss, American Backflow Prevention Association, representing American Backflow Prevention Association (msmoss@utah.gov)

2015 International Plumbing Code

Add new text as follows:

608.1.1 Equipment location and installation planning. Backflow prevention assemblies in accordance with Sections 608.13.2, 608.13.3, 608.13.5, 608.13.7 and 608.13.8 shall be located with the center of the assembly not greater than 5 feet (1524 mm) above a floor or a permanent equipment platform. Where an assembly or portions of an assembly must be located at a greater dimension above a floor or platform, a permanent equipment platform shall be provided to access the assembly, or portion thereof, that is greater than 5 feet (1524 mm) above the floor or platform. The structural design of equipment platforms shall comply with Chapter 16 of the *International Building Code.*

Reason: To ensure safe access to backflow prevention assemblies for testing, repair and maintenance, an equipment platform is required where the assembly is located higher than 5 feet off the floor. It is very difficult to work off of a ladder when attempt to test or repair a backflow prevention assembly. Having to work off a ladder is just an another obstacle that might cause someone to not do the required testing Where access is readily and safely provided,assemblies will be tested as they need to be.
This new section is placed at the beginning of Section 608 to alert mechanical systems designers to put some thought into where to locate these backflow prevention assemblies in the first place, rather than to have their location be an after thought such that equipment platformss are needed. No one wants to work off platform so prior planning to avoid platforms is smart design.

Cost Impact: Will not increase the cost of construction
Proper planned installation will not increase costs and will enhance safety.

P147-15 : 608.1.1 (New)-MOSS5765

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Manufacturer's instructions for these devices already cover these requirements. Why can't a ladder be used to do some testing? Contrary to what is claimed in the cost impact statement, this proposal will increase the cost of construction.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Michael Moss, representing American Backflow Prevention Association (msmoss@utah.gov) requests Approve as Submitted.

Commenter's Reason:

PUBLIC COMMENT to P 147-15 A backflow prevention assembly is installed because a cross connection was identified which could affect water quality. The assembly must be installed and maintained properly. Manufacturer's installation comments refer to proper piping concerns such as backpressure or continuous pressure, but only briefly mention adequate space for maintenance. Installation comments emphasize flushing of dirt and debris from the pipeline or freeze protection when used for irrigation. Most comments about adequate space are vague. This proposal provides specific installation criteria to assure the assembly can be easily reached to perform necessary annual field testing with room and proper footing to disassemble, repair or perform maintenance for the assembly. An assembly that is not easy to reach tends to have maintenance delayed or ignored which could create water quality problems. The use of a temporary ladder is conditional on its availability, sturdiness and adequate height. However, a ladder can only access one point on a vertical plane. An assembly may be several feet in a horizontal length requiring continual movement of the ladder. A ladder is not a stable work platform and is not conducive to carrying and holding various tools. It is also not an ideal location for applying torque to remove nuts, bolts and access covers and internal parts, especially if elevated. Falls from ladders are a significant concern for Workman's Compensation claims and OSHA violations. A proper location on the ground would be significantly advantageous for proper repair and maintenance. If an assembly must be installed in an elevated position, a permanent sturdy platform will ensure proper maintenance and optimal protection in the workplace.

P147-15

P148-15

608.1.2 (New), 608.1.2.1 (New), 608.1.2.2 (New), 608.1.2.3 (New)

Proposed Change as Submitted

Proponent : Michael Moss, representing American Backflow Prevention Association (msmoss@utah.gov)

2015 International Plumbing Code

Add new text as follows:

608.1.2 Specific installation criteria. Backflow prevention assemblies shall be installed in accordance with Sections 608.1.2.1 through 608.1.2.3, as applicable.

608.1.2.1 Reduced pressure principle backflow prevention assembly The reduced pressure principle backflow prevention assembly shall be installed as follows:

1. Assemblies shall not be installed in a pit.
2. The relief valve shall not be directly connected to any waste disposal line, including sanitary sewer, storm drains or vents.
3. Assemblies shall be in a horizontal position only unless listed or approved for vertical installation in accordance with Section 303.4.
4. The bottom of each assembly shall be installed not less than 12 inches above the floor or ground.
5. The body of each assembly shall be not less than 12 inches from any walls, ceiling, or obstacle and shall be be provided with access for testing, repair and maintenance.

608.1.2.2 Double check backflow prevention assembly. Double check backflow prevention assembly shall be installed as follows:

1. Assemblies shall be in the horizontal position except where listed or *approved* for vertical installation in accordance with Section 303.4.
2. The bottom of the assembly shall be not less than 12 inches above the floor or ground.
3. The body of each assembly shall be not less than 12 inches from any walls, ceilings or obstacle and shall be accessible for testing, repair and maintenance.
4. Where installed in a pit or vault, the body shall be not less than 12 inches from all sides, including the floor, roof or ceiling and shall be provided with access for testing, repair and maintenance.

608.1.2.3 Pressure and spill-resistant vacuum breaker assemblies. Pressure and spill-resistant vacuum breaker assemblies shall be installed as follows:

1. Not subject to a backpressure condition from downstream piping.
2. Not less than 12 inches above all downstream piping and outlets.

3. Not less than12 inches from any wall, ceiling or obstacle and shall be be provided with access for testing, repair and maintenance.
4. Not below ground, in a vault or pit.
5. In a vertical position only.

Reason: There is no adequate minimum installation criteria for the assemblies in Table 608.1 and inadequate guidance within the individual sections for the specific assemblies. For clarity and consistency this information is provided in these sections to assist in proper installation and inspection.

Cost Impact: Will not increase the cost of construction
There is no cost impact with the added criteria of proper installation.

P148-15 : 608.1.2 (New)-MOSS5671

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This information is already in the product standards however, there is useful information in what is presented. Use of "shall not be" is not acceptable code language. The committee prefers use of "shall be" in code language.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Michael Moss, representing American Backflow Prevention Association (msmoss@utah.gov) requests Approve as Submitted.

Commenter's Reason:

PUBLIC COMMENT to P 148-15 A backflow prevention assembly is installed because a cross connection was identified which could affect water quality and must be installed and maintained properly. Manufacturer's installation comments refer to proper piping concerns such as backpressure or continuous pressure but only briefly mention providing adequate space for maintenance. They emphasize flushing of dirt and debris in the pipeline or freeze protection for irrigation. Most comments about adequate space are vague. This proposal provides specific installation criteria to assure the assembly can be easily reached to perform necessary annual field testing with room provided for proper disassembly, repair or perform maintenance required. An assembly that is not easy to reach or adequate room for tools around the assembly tends to have maintenance delayed or ignored which could lead to water quality problems. Specifying a minimum space around the assembly will make it more conducive for easy use of needed tools and an easier job requiring less labor. I feel that the language of "shall not be" in the context of this requirement for section **608.1.2.1(1)** is precise and sound. However, alternate language might be "Assembly shall be installed above level ground surface to ensure there is no ponding or accumulation of liquids below it**".** Also, other manufacturer information would require that the proposed language for **608.1.2.3 (5)** be replaced with "The assembly shall be installed in the orientation as evaluated and approved by the third party approval agency".

Public Comment 2:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve

as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

608.14 Location of backflow preventers. Access shall be provided to backflow preventers as specified by the manufacturer's instructions and as required by this section.

608.14.1 Outdoor enclosures for backflow prevention devices. Outdoor enclosures for backflow prevention devices shall comply with ASSE 1060.

608.14.2 Testable backflow preventer installation requirements. Testable backflow preventers shall be provided with access for testing, maintenance and repair. The installation of a reduced pressure principle backflow prevention assembly shall comply with Section 608.14.2.1. The installation of a double check backflow prevention assembly shall comply with Section 608.14.2.2. The installation of pressure and spill-resistant vacuum breaker assemblies shall comply Section 608.14.2.3.

608.14.2.1 Reduced pressure principle backflow prevention assembly. The installation of a reduced pressure principle backflow prevention assembly shall comply with all of the following:

1. The assembly shall be located above a finished floor or above adjacent grade. The assembly shall not be located in a pit.
2. The relief port discharge of the assembly shall be indirectly connected to the sanitary drainage system or to an opening on the exterior of the building.
3. The assembly shall be oriented in a horizontal position except where the assembly is listed for use in an vertical orientation, the installed orientation shall be horizontal or vertical.
4. The lowest point of the assembly shall be not less than 12 inches (305 mm) above the finished floor or adjacent grade.
5. The assembly shall have clear space of not less than 12 inches (305 mm) to any wall, ceiling or other component.

~~**608.14.2.1 Relief port piping.** The termination of the piping from the relief port or *air gap* fitting of a backflow preventer shall discharge to an *approved* indirect waste receptor or to the outdoors where it will not cause damage or create a nuisance.~~

608.14.2.2 Double check backflow prevention assembly The installation of a double check backflow prevention assembly shall be in accordance with all of the following:
1. The assembly shall be oriented in a horizontal position except where the assembly is listed for use in an vertical orientation, the installed orientation shall be horizontal or vertical.
2. The lowest point of the assembly shall be not less than 12 inches (305 mm) above the finished floor or adjacent grade.
3. The assembly shall have clear space of not less than 12 inches (305 mm) to any wall, ceiling or other component.

608.14.2.3 Pressure and spill-resistant vacuum breaker assemblies. The installation of pressure and spill-resistant vacuum

breaker assemblies shall be in accordance with all of the following:

1. The assembly shall be in the vertical to horizontal orientation.
2. The critical level of the assembly shall be not less than the height, as specified by the assembly manufacturer, above the flood level rim. The assembly shall not be installed in a pit.
3. Piping downstream of the assembly shall be installed not higher than the outlet of the assembly.
4. The assembly shall have clear space of not less than 12 inches (305 mm) to any wall, ceiling or other obstruction.

~~**608.14.2**~~ **608.14.3 Protection of backflow preventers.** *No change to text.*

~~**608.1.2.1 Reduced pressure principle backflow prevention assembly** The reduced pressure principle backflow prevention assembly shall be installed as follows:~~

1. ~~Assemblies shall not be installed in a pit.~~
2. ~~The relief valve shall not be directly connected to any waste disposal line, including sanitary sewer, storm drains or vents.~~
3. ~~Assemblies shall be in a horizontal position only unless listed or approved for vertical installation in accordance with Section 303.4.~~
4. ~~The bottom of each assembly shall be installed not less than 12 inches above the floor or ground.~~
5. ~~The body of each assembly shall be not less than 12 inches from any walls, ceiling, or obstacle and shall be be provided with access for testing, repair and maintenance.~~

~~**608.1.2.2 Double check backflow prevention assembly.** Double check backflow prevention assembly shall be installed as follows:~~

1. ~~Assemblies shall be in the horizontal position except where listed or *approved* for vertical installation in accordance with Section 303.4.~~
2. ~~The bottom of the assembly shall be not less than 12 inches above the floor or ground.~~
3. ~~The body of each assembly shall be not less than 12 inches from any walls, ceilings or obstacle and shall be accessible for testing, repair and maintenance.~~
4. ~~Where installed in a pit or vault, the body shall be not less than 12 inches from all sides, including the floor, roof or ceiling and shall be provided with access for testing, repair and maintenance.~~

~~**608.1.2.3 Pressure and spill-resistant vacuum breaker assemblies.** Pressure and spill-resistant vacuum breaker assemblies shall be installed as follows:~~

1. ~~Not subject to a backpressure condition from downstream piping.~~
2. ~~Not less than 12 inches above all downstream piping and outlets.~~
3. ~~Not less than12 inches from any wall, ceiling or obstacle and shall be be provided with access for testing, repair and maintenance.~~
4. ~~Not below ground, in a vault or pit.~~
5. ~~In a vertical position only.~~

~~**608.1.2 Specific installation criteria.** Backflow prevention assemblies shall be installed in accordance with Sections 608.1.2.1 through 608.1.2.3, as applicable.~~

Commenter's Reason: This change contained a lot of useful information. However, it was located in the incorrect section and the wording needed to be modified. The correct location is Section 608.14. The language has been modified to be consistent with the language in the IPC. The requirements have also been coordinated with the current requirements. Section 608.14 needs to reference the provision in this modified section. Section 608.14.2.1 needs to be deleted since the requirements are addressed in the new text.

P148-15

P150-15 Part II

P2903.9.5

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

NOTE: PART I DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART I IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART II.

2015 International Residential Code

Revise as follows:

P2903.9.5 Valves and outlets prohibited below grade. Potable water outlets and combination stop-and-waste valves shall not be installed underground or below grade. ~~Freezeproof~~ A freezeproof yard ~~hydrants~~ hydrant that ~~drain~~ drains the riser into the ground ~~are~~ shall be considered ~~to be~~ as having a stop-and-waste ~~valves~~ valve below grade.

> **Exception:**~~Installation of freezeproof~~ Freezeproof yard hydrants that drain the riser into the ground shall be permitted ~~if~~ to be installed provided that the potable water supply to such hydrants is protected ~~upstream of~~ in accordance with Section P2902.3.5 or P2902.3.4 and the hydrants and the piping from the backflow preventer to the hydrants are identified in accordance with Section ~~P2902 and the hydrants are permanently identified as nonpotable outlets by *approved* signage that reads as follows: "Caution, Nonpotable Water~~ P2901.2. ~~Do Not Drink."~~

Reason: There is no way to know what type of health hazard the stop and waste opening of a yard hydrant will be exposed to. The contaminants could include lawn fertilizer, animal wastes, garden fertilizer or septic tank effluent. This application is not any different than an irrigation system having at/below grade sprinkler heads. See Section P2902.5.3. The code requires either a pressure vacuum breaker assembly or a backflow prevention assembly for that application. (For a valve downstream of the backflow preventer, an atmospheric vacuum breaker will not work). But the code currently lacks coverage for what type of backflow protection is necessary for yard hydrant applications. For the code officials who do give this yard hydrant application some thought, many simply choose a dual check valve which is only suitable for low hazard conditions. And there is no way to field verify that this type of backflow device is operational. This is a high hazard application just like an irrigation system and the potable water supply of the building should be protected accordingly. Improper backflow protection for connection of these frost proof yard hydrants to the building water distribution system is an accident waiting to happen.

Keep in mind that where a yard hydrant is needed, a sanitary type yard hydrant (one that does not drain the riser into the ground) can be provided, probably at a lower cost than requiring a backflow prevention assembly for the more inexpensive, riser drain-to-the-ground type yard hydrant. Where only one yard hydrant is installed, a sanitary yard hydrant will probably be an easier selection. Where multiple yard hydrants are on a lot, a dedicated yard hydrant line for all yard hydrants with one backflow prevention assembly to serve all hydrant might be easier.

The signage and marking requirements were removed as the indicated section was updated in the last code cycle to more adequately cover the topic. There is no need

to duplicate requirements in the code.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 148.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, where code officials were not requiring the correct backflow preventer for these applications, there will be a higher cost for the correct backflow preventer plus added labor and materials for either placing the required backflow prevention assembly in a place where leakage (when failure of the device occurs) or for providing a drain for the assembly for when leakage happens (when failure of the device occurs).

P150-15 Part II :
P2903.9.5-SNYDER5930

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: Yard hydrants can have a vacuum breaker on the outlet or a bacflow preventer supplying the hydrant. These requirements are already covered by Section P2902.

Assembly Motion: As Submitted
Online Vote Results: Successful
Support: 52.35% (78) Oppose: 47.65% (71)
Assembly Action : Approved as Submitted

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action
requests Approve as Submitted.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Approve as Submitted was successful by a vote of 52.35% (78) to 47.65% (71) by eligible members online during the period of May 14 - May 28, 2015.

P150-15 Part II

NOTE: PART I DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

P150-15 Part I

608.7

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

608.7 Valves and outlets prohibited below grade. Potable water outlets and combination stop-and-waste valves shall not be installed underground or below grade. ~~Freezeproof~~ A freezeproof yard ~~hydrants~~ hydrant that ~~drain~~ drains the riser into the ground ~~are~~ shall be considered ~~to be~~ as having a stop-and-waste ~~valves~~ valve below grade.

> **Exception:** Freezeproof yard hydrants that drain the riser into the ground shall be permitted to be installed~~,~~ provided that the potable water supply to such hydrants is protected ~~upstream of~~ in accordance with Section 608.13.2 or 608.13.5 and the hydrants and the piping from the backflow preventer to the hydrant are identified in accordance with Section ~~608 and the hydrants are permanently identified as nonpotable outlets by *approved* signage that reads as follows: "Caution, Nonpotable Water~~ 608.8. ~~Do Not Drink."~~

Reason: There is no way to know what type of health hazard the stop and waste opening of a yard hydrant will be exposed to. The contaminants could include lawn fertilizer, animal wastes, garden fertilizer or septic tank effluent. This application is not any different than an irrigation system having at/below grade sprinkler heads. See Section 608.16.5. The code requires either a pressure vacuum breaker assembly or a backflow prevention assembly for that application. (For a valve downstream of the backflow preventer, an atmospheric vacuum breaker will not work). But the code currently lacks coverage for what type of backflow protection is necessary for yard hydrant applications. For the code officials who do give this yard hydrant application some thought, many simply choose a dual check valve which is only suitable for low hazard conditions. And there is no way to field verify that this type of backflow device is operational. This is a high hazard application just like an irrigation system and the potable water supply of the building should be protected accordingly. Improper backflow protection for connection of these frost proof yard hydrants to the building water distribution system is an accident waiting to happen.

Keep in mind that where a yard hydrant is needed, a sanitary type yard hydrant (one that does not drain the riser into the ground) can be provided, probably at a lower cost than requiring a backflow prevention assembly for the more inexpensive, riser drain-to-the-ground type yard hydrant. Where only one yard hydrant is installed, a sanitary yard hydrant will probably be an easier selection. Where multiple yard hydrants are on a lot, a dedicated yard hydrant line for all yard hydrants with one backflow prevention assembly to serve all hydrant might be easier.

The signage and marking requirements were removed as the indicated section was updated in the last code cycle to more adequately cover the topic. There is no need to duplicate requirements in the code.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 148.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, where code officials were not requiring the correct backflow preventer for these applications, there will be a higher cost for the correct backflow preventer plus added labor and materials for either placing the required backflow prevention assembly in a place where leakage (when failure of the device occurs) or for providing a drain for the assembly for when leakage happens (when failure of the device occurs).

P150-15 Part I : 608.7-SNYDER5929

Public Hearing Results

Part I

Committee Action: Approved as Submitted

Committee Reason: The current text was unclear about sanitary yard hydrants so this text is better.

Assembly Action : None

P156-15

608.13.6, 608.13.6.1 (New), 608.13.6.2 (New), 608.13.6.3 (New)

Proposed Change as Submitted

Proponent : Michael Moss, American Backflow Prevention Association, representing American Backflow Prevention Association (msmoss@utah.gov)

2015 International Plumbing Code

Revise as follows:

608.13.6 Atmospheric-type vacuum breakers. ~~Pipeapplied atmospheric-type vacuum~~ Vacuum breakers shall ~~conform to ASSE 1001 or CSA B64.1.1~~ be in accordance with Sections 608.13.6.1 and 608.13.6.2. ~~Hose-connection vacuum breakers~~ Laboratory faucet backflow preventers shall ~~conform to ASME A112.21.3, ASSE 1011, ASSE 1019, ASSE 1035, ASSE 1052, CSA B64.2, CSA B64.2.1, CSA B64.2.1.1, CSA B64.2.2 or CSA B64.7. These devices shall operate under normal atmospheric pressure when the critical level is installed at the required height.~~ be in accordance with Section 608.13.6.3.

Add new text as follows:

608.13.6.1 Pipe-applied vacuum breakers Pipe-applied atmospheric-type vacuum breakers shall conform to ASSE 1001 or CSA B64.1.1. These vaccum breakers shall be considered capable of functioning only where the downstream piping is open to the atmosphere and is located not less than 6 inches above all downstream piping and outlets.

608.13.6.2 Hose-connection vacuum breakers. Hose connection vacuum breakers shall conform to ASME A112.21.3, ASSE 1011, ASSE 1019, ASSE 1035, ASSE 1052, CSA B64.2, CSA B64.2.1, CSA B64.2.2 or CSA B64.7. These vacuum breakers shall be considered capable of functioning only where the downstream hose is open to the atmosphere and the open end of the hose is not greater than 10 feet (3048 mm) above the elevation of the vacuum breaker.

608.13.6.3 Laboratory faucet backflow preventers Laboratory faucet backflow preventers shall conform to ASSE 1035 or CSA B64.7. These backflow preventers shall be considered capable of functioning only where the downstream hose is open to the atmosphere and the open end of the hose is not greater than 10 feet (3048 mm) above the elevation of the backflow preventer.

Reason: Existing Section 608.13.6 has requirements for three (3) different vacuum breakers with multiple standards. The statement "These devices shall operate under normal atmospheric pressure when the critical level is installed at the required height." does not provide adequate and necessary guidance for installation and inspection. The section was divided to ensure proper and clear installation and inspection conditions for each device.

Cost Impact: Will not increase the cost of construction
Proper installation and identification will not increase cost.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: One standard CSA B64.2.1.1 was left out of the list of standards. A public comment to fix this problem should be made to fix the error.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Michael Moss, representing American Backflow Prevention Association (msmoss@utah.gov) requests Approve as Submitted.

Commenter's Reason:

PUBLIC COMMENT to P 156-15 The intent of this proposal is to provide specific direction to those who use the code for the installation of these devices. In the process, there may have been inadvertent errors and omissions for specific standard references. The proposed language for **608.13.2** should include CSA B64.2.1.1.

P157-15
608.13.7, 608.13.10
Proposed Change as Submitted

Proponent : Michael Moss, American Backflow Prevention Association, representing American Backflow Prevention Association (msmoss@utah.gov)

2015 International Plumbing Code

Revise as follows:

608.13.7 Double check backflow prevention assemblies. Double check backflow prevention assemblies shall conform to ASSE 1015, CSA B64.5, CSA B64.5.1 or AWWA C510. Double check detector fire protection backflow prevention assemblies shall conform to ASSE 1048. These assemblies shall be considered to be capable of ~~operating~~ functioning under ~~continuous~~ any downstream pressure ~~conditions~~ condition whether continuous or intermittent.

608.13.10 Dual check valve type backflow preventer. Dual check valve-type backflow preventers shall conform to ASSE 1024 or CSA B64.6. These backflow preventers shall be considered to be capable of functioning under any downstream pressure condition whether continuous or intermittent.

Reason: In Section 608.13.7 the deleted language is more of a device design statement than a required condition of service for proper operation of the device. The added language conveys permissable downstream operating conditions. This is much clearer langauge for installation and inspection.
Section 608.13.10 has been modified to properly identify this device in accordance with the ASSE naming convention and Table 608.1. The added language conveys the permissable downstream operating conditions. his is much clearer langauge for installation and inspection.

Cost Impact: Will not increase the cost of construction
There is not any cost involved with the clarification of this section.

P157-15 : 608.13.7-MOSS5774

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There is a concern that these backflow preventer will not work in conjunction with fire pumps.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Michael Moss, representing American Backflow Prevention Association (msmoss@utah.gov) requests Approve as Submitted.

Commenter's Reason:

PUBLIC COMMENT to P 157-15 The intent of this proposal for **608.13.7** is to clarify that these assemblies are presently installed and function in fire sprinkler systems. Pressures are limited by the testing of the approval agency. Therefore the installation, specifically that with pumps to boost pressure, require the attention of the design professionals to ensure safety of operation. Proposed language of section **608.13.10** is intended to provide clear language for installation and inspection.

P157-15

P158-15

608.13.9, 608.16.7

Proposed Change as Submitted

Proponent : Michael Moss, American Backflow Prevention Association, representing American Backflow Prevention Association (msmoss@utah.gov)

2015 International Plumbing Code

Delete without substitution:

~~**608.13.9 Chemical dispenser backflow devices.** Backflow devices for chemical dispensers shall comply with ASSE 1055 or shall be equipped with an *air gap* fitting.~~

Revise as follows:

608.16.7 Chemical dispensers. Where chemical dispensers connect to the potable water distribution system, the water supply system shall be protected against backflow in accordance with Section 608.13.1, 608.13.2, 608.13.5, 608.13.6, ~~608.13.8~~ or ~~608.13.9~~ 608.13.8. The chemical dispenser unit shall connect to a dedicated water supply connection separate from any sink faucet outlet.

> **Exception:** For chemical dispenser units *listed* to act as an air gap fitting because backflow protection is installed within the unit, an external means of protection shall not be required.

Reason: Section 608.13.9 is incorrectly located and confused with the various types of backflow preventers of Section 608.13 which is specific to the types of backflow preventers, their standards and suitability to certain conditions. Table 608.1 aligns with those. Chemical dispensers already specify the backflow requirements in Section 608.16.7

Cost Impact: Will not increase the cost of construction
There is no addition cost for the proper use and installation

P158-15 : 608.13.9-MOSS5775

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Why was ASSE 1055 removed from this section? No one could answer this question.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Michael Moss, representing American Backflow Prevention Association (msmoss@utah.gov) requests Approve as

Submitted.

Commenter's Reason:

PUBLIC COMMENT to P 158-15 The language for this proposal is to clarify backflow protection requirements for chemical dispenser equipment. It does not remove standard ASSE 1055, it specifies when additional protection is required. This language also ensures a proper installation by specifying a separate dedicated connection. This installation does not compromise existing approved installed equipment. Where chemical dispenser equipment meets the existing standard of code protection there is no additional protection required.

P158-15

P162-15 Part I

608.16.11 (New), 801.1, 801.2, 802.1

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Add new text as follows:

608.16.11 Humidifiers. The water supply connection to humidifiers shall be protected against backflow by a backflow preventer conforming to ASSE 1012 or by an *air gap*.

Revise as follows:

801.1 Scope. This chapter shall govern matters concerning indirect waste piping and special wastes. This chapter shall further control matters concerning food-handling establishments, sterilizers, humidifiers, clear-water waste, swimming pools, methods of providing *air breaks* or *air gaps*, and neutralizing devices for corrosive wastes.

801.2 Protection. Devices, appurtenances, appliances and apparatus intended to serve some special function, such as sterilization, humidification, distillation, processing, cooling, or storage of ice or foods, and that discharge to the drainage system, shall be provided with protection against backflow, flooding, fouling, contamination and stoppage of the drain.

802.1 Where required. Food-handling equipment, in other than dwelling units, clear-water waste, humidifiers, dishwashing machines and utensils, pots, pans and dishwashing sinks shall discharge through an indirect waste pipe as specified in Sections 802.1.1 through 802.1.8. Health-care related fixtures, devices and equipment shall discharge to the drainage system through an indirect waste pipe by means of an *air gap* in accordance with this chapter and Section 713.3. Fixtures not required by this section to be indirectly connected shall be directly connected to the plumbing system in accordance with Chapter 7.

Reason: Most humidifier manufacturer installation instructions only say to make potable water connections in accordance with local codes. The codes are silent on the protection of the water supply connection to humidifiers. Humidifiers, if not regularly serviced, can be a source of contamination to the connected water supply. The inspector has no way of knowing whether such pieces of equipment have internal backflow protection. This simple addition to the codes will clarify the humidifiers need to have a backflow device just like other similar pieces of equipment in the list of items.
Humidifiers have overflows that drain excess water. Improper (direct) connection of the overflow tube could cause a contamination to occur inside of the humidifier which could result in contamination being carried into the airstream of the equipment that the humidifier is attached to. The requirement for an air gap connection at the termination of this discharge tube will prevent this possible contamination from occurring.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International

Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 177.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, there will be the added cost of a backflow preventer and the installation labor.

P162-15 Part I : 608.16.11 (NEW)-SNYDER5925

Public Hearing Results

Part I

Committee Action: Approved as Submitted

Committee Reason: Some humidifiers on the market do not have integral backflow protection for the water supply.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

608.16.11 Humidifiers. The water supply connection to humidifiers that do not have internal backflow protection shall be protected against backflow by a backflow preventer conforming to ASSE 1012 or CSA B64.3, or by an *air gap*.

Commenter's Reason: This modification clarifies the requirements and adds the reference to the CSA standard. It was merely an oversight that the equivalent CSA standard was not listed.

P162-15 Part I

P162-15 Part II

P2725 (New), P2726.1 (New), P2902.6 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Residential Code

Add new text as follows:

SECTION P2725
HUMIDIFIER DISCHARGE

P2726.1 Overflow pipe from humidifier. The overflow pipe from a humidifier shall terminate at an air gap before discharging water to the point of disposal.

P2902.6 Humidifiers. The water supply connection to humidifiers shall be protected against backflow by a backflow preventer conforming to ASSE 1012 or by an air gap.

Reason: Most humidifier manufacturer installation instructions only say to make potable water connections in accordance with local codes. The codes are silent on the protection of the water supply connection to humidifiers. Humidifiers, if not regularly serviced, can be a source of contamination to the connected water supply. The inspector has no way of knowing whether such pieces of equipment have internal backflow protection. This simple addition to the codes will clarify the humidifiers need to have a backflow device just like other similar pieces of equipment in the list of items.
Humidifiers have overflows that drain excess water. Improper (direct) connection of the overflow tube could cause a contamination to occur inside of the humidifier which could result in contamination being carried into the airstream of the equipment that the humidifier is attached to. The requirement for an air gap connection at the termination of this discharge tube will prevent this possible contamination from occurring.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 177.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, there will be the added cost of a backflow preventer and the installation labor.

P162-15 Part II : P2725 (New)-SNYDER5926

Public Hearing Results

Part II

Committee Action: **Disapproved**

Committee Reason: The language needs a little work. In the first section, "at an air gap" should be "through an air gap". Is it the overflow in the humidifier that needs the air gap or is an air gap needed for the water supply to the humidifier?

Assembly Action **:** None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Residential Code

P2902.6 Humidifiers. The water supply connection to humidifiers that do not have internal backflow protection shall be protected against backflow by a backflow preventer conforming to ASSE 1012 or CSA B64.3, or by an air gap.

P2726.1 Overflow pipe from humidifier. The overflow pipe from a humidifier shall terminate at an air ~~gap~~ break before discharging water to the point of disposal.

Commenter's Reason: These modification are consistent with the modifications proposed to Part 1. Additionally, the discharge from a humidifier is through an air break, not an air gap. The water supply is protected against backflow, hence, the discharge is non-potable water. The code allows non-potable water to discharge through an air break.

Public Comment 2:

Proponent : **Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Residential Code

P2726.1 Overflow pipe from humidifier. The overflow pipe from a humidifier shall ~~terminate at~~ discharge through an air break or an air gap ~~before discharging water to the point of disposal~~.

Commenter's Reason: The Committee's confusion was understood and the requested modification resolves that confusion. "Air break" was added because the small humidifiers installed for residential HVAC systems are commonly installed in this manner. Typically, the tubing is inserted into a standpipe or a hole is cut in a floor drain cover with the tube inserted into the hole to keep it in the drain. Both arrangements would be considered an air break. There have not been any problems with this practice. Requiring only an air gap at a drain termination point is often difficult to accomplish because of the problems for making sure that the tube stays in place and does not get knocked out of place to end up causing water damage. There is no need to complicate these installations.
Leaving the option for air gap in this section is necessary for where the discharge goes to the outdoors. Some rewording was necessary to make the intent clear. In an outdoor discharge arrangement, the term "air break" makes no sense so the text was revised to make this section read correctly.

P162-15 Part II

P167-15
701.8

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Delete without substitution:

~~**701.8 Drainage piping in food service areas.** Exposed soil or waste piping shall not be installed above any working, storage or eating surfaces in food service establishments.~~

Reason: Questions about this section have been coming up more frequently concerning the necessity of this requirement and the intent of the section. Does this section mean that soil and waste piping cannot be above the indicated areas regardless of whether a "ceiling" is between the piping and those areas? Or is this section requiring that a ceiling be installed and if so, what type of ceiling (lay-panel/grid work or gypsum board on framing)? Or is this section requiring custom-made "drip pans" under all soil and waste piping (whether there is a ceiling between the piping and the surfaces below or not)?

This section is vague and should be removed from the code. Here's why:

There seems to be the implication that soil and waste piping joints will always leak even though the piping is installed in accordance with the code and is pressure tested in the presence of a code official. If there really is a significant problem with joints failing, then that is an issue to be solved elsewhere. What about ductwork, sprinkler piping and even penetrations through a floor above that can leak "contaminated water" that can drop down to the surfaces below? What about condensation on the outside of cool surfaces that carry years of dirt off of surfaces. Why is there not a similar restriction against the installation of ductwork, sprinkler piping and penetrations above these areas?

If the assumption is made that a ceiling below the piping is what is required, why does a ceiling make the situation any more acceptable? Lay-in panel/grid ceiling systems can "leak" water without ever showing any damage to ceiling panels (think of the lighting troffers). Would we not be just as concerned about leakage in a space above a ceiling that served as an air plenum for a HVAC system?

A recent popular building design practice for restaurants is to not have a "ceiling" over the eating surfaces such as tables or bars. The "ceiling" in these areas is the bottom of the roof deck or the floor above. All the support structure, ductwork, sprinkler piping, other piping and associated hardware is exposed; typically all painted a uniform dark color.

Where the floor above the eating surfaces has plumbing fixtures, there will necessarily be soil and waste piping below the floor and in the open ceiling area just described. If the code intends for "drip pans" to be installed under the piping, then what should the drip pans be made of? Should those pans slope to a drain point? If so, where should the discharge of the drip pans be routed to? Is it acceptable to have the drip pans catching leaks for years and, unbeknownst to the owner, allowing a build-up of a festering mess of bacteria that is open to the moving ventilation air in the space?

A reading of the latest Food Code by the FDA, did not reveal any prohibitions for soil and waste piping above the surfaces indicated in this section. However, the Food

Code does make a big deal about the "clean ability" of surfaces above food prep areas (but not above eating surfaces). Obviously, pipes and pipe hangers as well as most structural and ductwork surfaces would be difficult to clean. The local health departments enforcing their version of the Food Code will most likely demand ceilings in the food prep area even though the code (the IBC) does not have such a requirement.

Perhaps what needs to happen is that a proposal to the IBC be made to indicate that ceilings (and what type) are required above food preparation areas with the justification that the Food Code has concerns about "clean ability" of items that would be exposed if the ceiling was not there. That seems more logical than possibly what IPC Section 701.8 is trying to imply.

The PMGCAC did not feel that it was within their scope to make or suggest an IBC proposal for ceilings in restaurants. However, if such a proposal was made and was successful, it would be appropriate to make a proposal to the IPC that would prohibit the installation of any type of piping below a ceiling required by IBC Section 123.4 (whatever the IBC section number would end up being). Until then, this IPC Section 701.8 should simply be removed.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 137.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P167-15 : 701.8-SNYDER4019

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The committee agreed with the proponent's published reason statement. Ceilings for these areas should be addressed in the IBC.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Michael Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservices.com) requests Disapprove.

Commenter's Reason: Why would you want pipes over food areas? Even with perfect joints, condensation is still possible.

P169-15

Table 702.1,Table 702.2, Table 702.3, 705.12 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

TABLE 702.1
ABOVE-GROUND DRAINAGE AND VENT PIPE

MATERIAL	STANDARD
Ductile iron	AWWA C115/A21.15, AWWA C151/A21.51

(Portions of table not shown remain unchanged)

TABLE 702.2
UNDERGROUND BUILDING DRAINAGE AND VENT PIPE

MATERIAL	STANDARD
Ductile iron	AWWA C115/A21.15, AWWA C151/A21.51

(Portions of table not shown remain unchanged)

TABLE 702.3
BUILDING SEWER PIPE

MATERIAL	STANDARD
Ductile iron	AWWA C115/A21.15, AWWA C151/A21.51

(Portions of table not shown remain unchanged)

Add new text as follows:

705.12 Ductile iron. Joints between ductile iron pipe sections, or between ductile iron pipe and ductile or gray iron fittings shall be mechanical joints

installed in accordance with the manufacturer's instructions.

Reason: Tables 702.1, 702.2, 702.3 are each missing a ductile iron pipe material entry even though the pipe fitting Table 702.4 includes ductile iron fittings. That in itself is a coordination problem. Why would the pipe fittings be included in the code but not the pipe? Over the years, there have been a few designers asking about what this is because they want to use ductile iron for sanitary drainage service. Although more costly that most other drainage pipe materials, there are good reasons for that material choice for special circumstances both inside and outside of a building. This material might be used where support spacing is desired to be much wider than the code allows (Table 308.5). Or burial in expansive soils creates significant stresses for the piping that other pipe materials don't have the strength to withstand.

Ductile iron piping is frequently used by utilities for wastewater service. The standards for ductile iron piping are already in the code because the same standards apply to ductile iron water piping. However, for water service, the piping is required (by this code) to have cement mortar lining to reduce rust coloring of potable water. Ductile iron for wastewater service does not need a lining.

The new section simply covers how the joints are to be made between fittings and the piping.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 52.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P169-15 : T702.1-SNYDER4020

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Sanitary drainage pattern fittings are not available for this product except for wyes. Typically, flanged fittings are used above ground and mechanical fittings are used below ground.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Committee (PMGCAC@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: The Committee's reason is true statement about ductile iron *fittings* and where certain types should and shouldn't be used. It is also true a true statement that ductile iron fittings are not available in a wide selection of drainage patterns.

But this proposal has nothing to do with putting ductile iron fittings in the code. Gray iron/ ductile iron fittings have been in the fittings table of the code (Table 702.4) for many, many editions. *This proposal* is only about adding ductile iron pipe standards to the sanitary drainage pipe tables of the code to "match" those fittings. What purpose is served by having the ductile (and gray iron) fittings in the fittings table if the pipe tables do not have the corresponding ductile iron pipe that is used with those fittings?

There are applications where ductile iron pipe is used in sanitary drainage piping systems to avoid potential problems in some applications. There is not a question about whether ductile iron piping is suitable for waste water sevice. Millions of miles of ductile iron piping are installed in municipal (utility) sewer systems because of its durability and strength. This proposal does not attempt to provide justification for use of this type of piping for wastewater service....that is wide-spread general knowledge and well-documented by many studies and white papers in the utility services industry. *And* d*uctile iron fittings are already in the IPC!*

There have been instances where "hard line" inspectors refuse to consider accepting ductile iron pipe as an alternative material under Section 105.2. "If it is not written in the code, then I can't accept it." This has created quite a stir on more than one project and makes no sense that this material would not be acceptable given that the *fittings for this pipe are already in the IPC!*

This proposal needs approval to resolve a long-standing "disconnect" in the code.

P169-15

P175-15
702.5

Proposed Change as Submitted

Proponent : Michael Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservices.com)

2015 International Plumbing Code

Revise as follows:

702.5 Temperature rating. Where the waste water temperature will be greater than 140°F (60°C), the sanitary drainage piping material shall be ~~rated~~ recommended for such service by the pipe and fitting manufacturers for the highest temperature of the waste water.

Reason: Non-pressure DWV piping materials are not "rated" as pressure piping is - rating is a combination temperature and pressure issue.

Cost Impact: Will not increase the cost of construction
This proposal is only modifying and correcting language and does not impact costs. Thus the code with this proposal added will not cause the cost of construction to increase.

P175-15 : 702.5-CUDAHY4926

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The term "recommended" is weak code language. The use of pipe and fittings for higher temperature service should be approved by the manufacturer,

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Michael Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservices.com) requests Approve as Submitted.

Commenter's Reason: "Approved" is a term reserved for the code official, not the manufacturer. We recommend our original language, "recommended". Non-pressure pipe is not rated.

P175-15

P178-15 Part I

704.2

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

704.2 ~~Change~~ No reduction in size in the direction of flow. The size of the drainage piping shall not be reduced in ~~size in~~ the direction of the flow. The following shall not be considered a reduction in size in the direction of flow:

1. A 4-inch by 3-inch (102 mm by 76 mm) water closet ~~connection shall~~ flange.
2. A water closet bend fitting having a 4-inch (102 mm) inlet and a 3-inch (76 mm) outlet provided that the 4 inch leg of the fitting is upright and below, but not ~~be considered as a reduction in size.~~ necessarily directly connected to, the water closet flange.
3. An approved offset closet flange.

Reason: This section begs for clarification especially since 4 x 3 closet bends (elbows) and offset closet flanges are frequently being used in current day construction. Item 1 is not any change to what was stated before.

Item 2- Four x 3 closet bends were commonly used many decades ago when these bends were made of lead. The item is carefully worded to make the intent clear that the bend is to be installed in the upright orientation (and not horizontally). Also, the wording indicates that the bend is not required to be directly connected to closet flange – there can be a vertical section of pipe between the upright bend and the closet flange.

Item 3-Offset closet flanges have been used for decades. Some jurisdictions are reluctant to allow any offset closet flanges because the code doesn't outright discuss the use offset flanges (nor does it prohibit them). Because some offset closet flanges are especially "restrictive looking", code officials didn't want to start allowing some types and not other types. This section is often cited as the basis for disapproving the use of all offset flanges. However, that doesn't seem completely appropriate as some offset closet flanges comply with the standards indicated for pipe fittings in Table 702.4. For example, the standard ASTM D2665 (for PVC fittings) references the standard ASTM D3311 for the patterns and dimensions of DWV fittings. Table 44 in ASTM D3311 shows two types of offset closet flanges. Thus, a code official denying the use of that particular offset closet flange might not be supported by what the code is allowing by Table 702.4. Therefore, Item 3 is being added to open the door for fittings that are already approved by inclusion in a referenced standard and any other offset closet flange that the code official thinks is acceptable.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included

members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 201.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P178-15 Part I : 704.2-SNYDER5939

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: Requiring offset closet flanges be approved (by the code official) puts the responsibility onto the code official without providing him any guidance as to how to decide what is acceptable.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

704.2 No reduction in size in the direction of flow. The size of the drainage piping shall not be reduced in the direction of the flow. The following shall not be considered as a reduction in size in the direction of flow:

1. A 4-inch by 3-inch (102 mm by 76 mm) water closet flange.
2. A water closet bend fitting having a 4-inch (102 mm) inlet and a 3-inch (76 mm) outlet provided that the 4 inch leg of the fitting is upright and below, but not necessarily directly connected to, the water closet flange.
3. An ~~approved~~ offset closet flange.

Commenter's Reason: The Committee's point about offset closet flange is well-taken. The PMGCAC is removing "approved". This does not necessarily mean that *any* design of offset closet flange is acceptable. Closet flanges are pipe fittings and should comply with the standards indicated for pipe fittings in Table 702.4.

For example, PVC pipe standards ASTM D2665 and F1866 include a reference to ASTM D3311 which covers the patterns and dimnesions for drainage fittings. ASTM D3311 includes the pattern and dimensions for an offset closet flange.Therefore, where the offset closet flange is marked with the standard for the pipe, that fitting is acceptable. Any pipe fitting, such as a closet flange, that is not marked with the pipe

or fitting standard that includes a reference to fitting patterns for offset closet flanges,would need to be approved under Section 105.2 Alternative design, materials and methods.

P178-15 Part I

P178-15 Part II

P3005.1.6

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Residential Code

Revise as follows:

P3005.1.6 ~~Change~~ No reduction in size in the direction of flow. The size of the drainage piping shall not be reduced in ~~size in~~ the direction of the flow. The following shall not be considered a reduction in size in the direction of flow:

1. A 4-inch by 3-inch (102 mm by 76 mm) water closet ~~connection shall~~ flange.
2. A water closet bend fitting having a 4-inch (102 mm) inlet and a 3-inch (76 mm) outlet provided that the 4 inch leg of the fitting is upright and below, but not ~~be considered as a reduction in size.~~ necessarily directly connected to, the water closet flange.
3. An approved offset closet flange.

Reason: This section begs for clarification especially since 4 x 3 closet bends (elbows) and offset closet flanges are frequently being used in current day construction. Item 1 is not any change to what was stated before.

Item 2- Four x 3 closet bends were commonly used many decades ago when these bends were made of lead. The item is carefully worded to make the intent clear that the bend is to be installed in the upright orientation (and not horizontally). Also, the wording indicates that the bend is not required to be directly connected to closet flange – there can be a vertical section of pipe between the upright bend and the closet flange.

Item 3-Offset closet flanges have been used for decades. Some jurisdictions are reluctant to allow any offset closet flanges because the code doesn't outright discuss the use offset flanges (nor does it prohibit them). Because some offset closet flanges are especially "restrictive looking", code officials didn't want to start allowing some types and not other types. This section is often cited as the basis for disapproving the use of all offset flanges. However, that doesn't seem completely appropriate as some offset closet flanges comply with the standards indicated for pipe fittings in Table P3002.3. For example, the standard ASTM D2665 (for PVC fittings) references the standard ASTM D3311 for the patterns and dimensions of DWV fittings. Table 44 in ASTM D3311 shows two types of offset closet flanges. Thus, a code official denying the use of that particular offset closet flange might not be supported by what the code is allowing by Table P3002.3. Therefore, Item 3 is being added to open the door for fittings that are already approved by inclusion in a referenced standard and any other offset closet flange that the code official thinks is acceptable.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included

members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 201.

Cost Impact: Will not increase the cost of construction

This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P178-15 Part II :
P3005.1.6-SNYDER5940

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: Item 3 requires offset closet flanges to be approved by the code official but there is not any criteria for the code official to use for making that approval. There are many different types of offset closet flanges that would not be appropriate.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

P3005.1.6 No reduction in size in the direction of flow. The size of the drainage piping shall not be reduced in the direction of the flow. The following shall not be considered a reduction in size in the direction of flow:

1. A 4-inch by 3-inch (102 mm by 76 mm) water closet flange.
2. A water closet bend fitting having a 4-inch (102 mm) inlet and a 3-inch (76 mm) outlet provided that the 4 inch leg of the fitting is upright and below, but not necessarily directly connected to, the water closet flange.
3. An ~~approved~~ offset closet flange.

Commenter's Reason: The Committee's point about offset closet flange is well-taken. The PMGCAC is removing "approved". This does not necessarily mean that *any* design of offset closet flange is acceptable. Closet flanges are pipe fittings and should comply with the standards indicated for pipe fittings in Table P3002.3.

For example, PVC pipe standards ASTM D2665 and F1866 include a reference to

ASTM D3311 which covers the patterns and dimensions for drainage fittings. ASTM D3311 includes a pattern and dimensions for an offset closet flange.Therefore, where the offset closet flange is marked with the standard for the pipe that references ASTM D3311, that fitting is acceptable. Any fitting that is not marked with the pipe standard (that references ASTM D3311) would need to be approved under Section 105.2 Alternative design, materials and methods.

P178-15 Part II

P199-15

713 (New), 713.1 (New), 713.1.1 (New), 713.1.2 (New)

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing InSinkErator (JBENGINEER@aol.com)

2015 International Plumbing Code

Add new text as follows:

SECTION 713
FOOD WASTE IN COMMERCIAL FOOD HANDLING ESTABLISHMENTS

713.1 Food waste. In commercial food handling establishments, the disposal of food waste shall be in accordance with Section 713.1.1 or Section 713.1.2.

713.1.1 Food waste disposer. Food waste shall discharge to the sanitary drainage system through a commercial food waste disposer.

713.1.2 Separation of food waste. Food waste shall be separated from sanitary drainage flow. Such food waste shall be put into a trash receptacle, a composting bin, a beneficial reuse bin or a pulper for disposal. Sink strainers and mechanical strainers shall be an *approved* means for separating food waste from drainage flow.

Reason: While this may appear to be an obvious requirement, there are still plumbing systems that have food waste discharged down the drain. The only time food waste should discharge down the drain in a food handling establishment is after it has been first ground up through a commercial food waste disposer.
If a commercial food waste disposer is not provided, the food waste must be disposed of in another manner. The most common method of disposing of food waste is to a trash receptacle. Other options are to compost the food waste, have it sent for beneficial reuse, or dispose of it to a pulper.

This code requirement will help prevent stoppages in the drainage system resulting for large food waste items that do not belong in the piping. Only pulverized food particle are intended to be discharged to the sanitary drainage system.

Cost Impact: Will not increase the cost of construction
The intent of the code is currently to prevent uncontrolled food waste from discharging down the drain. This section merely identifies the options for doing this.

P199-15 : 713 (New)-BALLANCO3806

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The food separation section is unenforceable. This proposal seems to force the installation of a food waste disposer.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing InSInkErator (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: The reason the committee rejected this change is because they claim it is unenforceable. That is not correct. There are means that must be provided during inspection to assure that untreated food waste does not discharge down the drainage system. All of these means are enforceable. If the claim is made that this in unenforceable, the same could be made for the statement in the Plumbing Code that reads, "Corrosive liquids, spent acids or other harmful chemicals that destroy or injure a drain, sewer, soil or waste pipe, or create noxious or toxic fumes or interfere with sewage treatment processes shall not be discharged into the plumbing system." However, this section has been a mainstay of the code since the code's inception.

The Committee's second statement that the proposal seems to force the installation of a food waste disposer is completely unprofessional. There is no mandate of food waste disposers in this section. As anyone in the plumbing profession knows, the only way to allow food waste down the drainage system is through a food waste disposer. Otherwise, the food waste must be removed.

This section provides the necessary code language to for addressing food waste in a commercial food handling establishment.

P199-15

P202-15 Part I

715.1, 715.2 (New)

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Mainline Backflow Products (JBENGINEER@aol.com)

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART II IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART I.

2015 International Plumbing Code

Revise as follows:

715.1 ~~Sewage backflow.~~ Where required. Where plumbing fixtures are installed on a floor with a finished floor elevation below the elevation of the manhole cover of the next upstream manhole in the public *sewer*, such fixtures shall be protected by a backwater valve installed in the *building drain*, or horizontal *branch* serving such fixtures. ~~Plumbing fixtures installed on a floor with a finished floor elevation above the elevation of the manhole cover of the next upstream manhole in the public *sewer* shall not discharge through a backwater valve.~~

> ~~**Exception:** In existing buildings, fixtures above the elevation of the manhole cover of the next upstream manhole in the public *sewer* shall not be prohibited from discharging through a backwater valve.~~

Add new text as follows:

715.2 Allowable installation. Where plumbing fixtures are installed on a floor with a finished floor elevation above the elevation of the manhole cover of the next upstream manhole in the public sewer, and a backwater valve is installed in the building drain or horizontal branch serving such fixtures, the backwater valve shall be of the normally-open type.

> **Exception:** Normally-closed backwater valve installations for existing buildings shall not be prohibited.

Reason: This section was originally developed based on the use of what is now classified as "normally closed backwater valve." ASME A112.14.1 has two categories of backwater valves, normally closed backwater valves and normally open backwater valves. A normally open backwater valve allows the free movement of air throughout the drainage system. The connection to the public sewer is based on having a free movement of air from the public sewer through the vent terminal on the roof. When a normally closed backwater valve is installed for the entire plumbing system, this is not accomplished. However, with a normally open backwater valve, the free movement of air occurs in the sanitary drainage and vent system.

This change merely adds a distinction between the use of a normally closed backwater valve and a normally open backwater valve. The requirements for normally closed backwater valve remain the same. The only change is to revise the title of the section to read, "Where required." Since this is the section that requires backwater valves to be installed, it is most appropriate to entitle the section, "Where required."

The second half of the original section has been split into a new section entitled,

"Allowable installation." This is the part of the original code section that placed limitations on using backwater valves for fixtures that are located above the elevation of the manhole cover. The change is to allow the discharge of fixtures located above the elevation of the manhole cover provided that a normally open backwater valve is installed. This is consistent with the intended use of each style of backwater valve.

The wording of the exception was been changed to reflect the revised wording to Section 915.2. However, the requirements of the exception do not change. It still will allow a normally closed backwater valve for an existing building.

Cost Impact: Will increase the cost of construction
This change provides options for the code user. There is no additional language mandating the use of backwater valves.

P202-15 Part I : 715.1-BALLANCO5901

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: The plumbing industry has used normally closed backwater valves for decades where protection against backwater events was necessary. This proposal no requires that normally open tpye have to be used in some applications but again, normally closed valves have worked fine before this. This requirement seems overly restrictive and possibly requiring proprietary products.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Mainline Backflow Products (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: It is strange that the Committee considered this code change overly restrictive. In fact, it is the opposite. The Committee's concern for normally closed backwater valves is misplaced. The proposed code change allows normally closed backwater valves in the same locations they have always been permitted. The modification would allow normally open backwater valves to be used in new construction whereas the current code prohibits all backwater valves. The reason given for prohibiting backwater valves for these installations was that the backwater valve closes off the free flow of air in the drainage and vent system. While this is true for normally closed backwater valves, it is not true for normally open valves. That is why the standard makes a distinction between the two types of valves.

Part 2 of this change was recommended for approval.

P202-15 Part I

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

P202-15 Part II

P3008.1, P3008.2 (New)

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Mainline Backflow Products (JBENGINEER@aol.com)

2015 International Residential Code

Revise as follows:

P3008.1 ~~Sewage backflow.~~ Where required. Where the flood level rims of plumbing fixtures are below the elevation of the manhole cover of the next upstream manhole in the public sewer, the fixtures shall be protected by a backwater valve installed in the *building drain*, branch of the *building drain* or horizontal branch serving such fixtures. ~~Plumbing fixtures having flood level rims above the elevation of the manhole cover of the next upstream manhole in the public sewer shall not discharge through a backwater valve.~~

> ~~**Exception:** In existing buildings, fixtures above the elevation of the manhole cover of the next upstream manhole in the *public sewer* shall not be prohibited from discharging through a backwater valve.~~

Add new text as follows:

P3008.2 Allowable installation. Where plumbing fixtures are installed on a floor with a finished floor elevation above the elevation of the manhole cover of the next upstream manhole in the public sewer, and a backwater valve is installed in the building drain or horizontal branch serving such fixtures, the backwater valve shall be of the normally-open type.

> **Exception:** Normally-closed backwater valve installations for existing buildings shall not be prohibited.

Reason: This section was originally developed based on the use of what is now classified as "normally closed backwater valve." ASME A112.14.1 has two categories of backwater valves, normally closed backwater valves and normally open backwater valves. A normally open backwater valve allows the free movement of air throughout the drainage system. The connection to the public sewer is based on having a free movement of air from the public sewer through the vent terminal on the roof.

When a normally closed backwater valve is installed for the entire plumbing system, this is not accomplished. However, with a normally open backwater valve, the free movement of air occurs in the sanitary drainage and vent system.

This change merely adds a distinction between the use of a normally closed backwater valve and a normally open backwater valve. The requirements for normally closed backwater valve remain the same. The only change is to revise the title of the section to read, "Where required." Since this is the section that requires backwater valves to be installed, it is most appropriate to entitle the section, "Where required."

The second half of the original section has been split into a new section entitled, "Allowable installation." This is the part of the original code section that placed limitations on using backwater valves for fixtures that are located above the elevation of the manhole cover. The change is to allow the discharge of fixtures located above the elevation of the manhole cover provided that a normally open backwater valve is installed. This is consistent with the intended use of each style of backwater valve.

The wording of the exception was been changed to reflect the revised wording of Section P3008.2. However, the requirements of the exception do not change. It still will allow a normally closed backwater valve for an existing building.

Cost Impact: Will not increase the cost of construction
This change provides options for the code user. There is no additional language mandating the use of backwater valves.

P202-15 Part II :
P3008.1-BALLANCO3727

Public Hearing Results

Part II

Committee Action: Approved as Submitted

Committee Reason: The committee agreed with the proponent's published reason statement.

Assembly Action : None

P205-15 Part I

718 (New), Chapter 14

Proposed Change as Submitted

Proponent : Larry Gill, representing IPEX USA LLC (larry.gill@ipexna.com)

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART II IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART I.

2015 International Plumbing Code

Add new text as follows:

SECTION 718
REPLACEMENT OF UNDERGROUND SEWERS BY PVC FOLD AND FORM METHODS

718.1 General This section shall govern the replacement of existing building sewer piping by PVC fold and form methods.

718.2 Applicability The replacement of building sewer piping by PVC fold and form methods shall be limited to gravity drainage piping of sizes 6 inches (152mm) and smaller. The replacement piping shall be of the same nominal size as the existing piping.

718.3 Pre-installation inspection The existing piping sections to be replaced shall be inspected internally by a recorded video camera survey. The survey shall include notations of the position of cleanouts and the depth of connections to the existing piping.

718.4 Pipe The replacement piping shall be manufactured in compliance with ASTM F1871 or ASTM F1504.

718.5 Installation Pipe complying with ASTM F1504 shall be installed in accordance with ASTM F1947. Pipe complying with ASTM F1871 shall be installed in accordance with ASTM F1867.

718.6 Cleanouts Where the existing building sewer did not have cleanouts meeting the requirements of this code, cleanout fittings shall be installed as required by this code.

718.7 Post-installation inspection The completed replacement piping shall be inspected internally by a recorded video camera survey. The video survey shall be reviewed and approved by the code official prior to pressure testing of the replacement piping system.

718.8 Pressure testing The replacement piping system and the connections to the replacement piping shall be tested in accordance with Section 312.

Add new standard(s) as follows:
ASTM F1871-2011 Standard Specification for Folded/Formed Poly (Vinyl Chloride) Pipe Type A for Existing Sewer and Conduit Rehabilitation

ASTM F1504-2014 Standard Specification for Folded Poly(Vinyl Chloride)

(PVC) Pipe for Existing Sewer and Conduit Rehabilitation

ASTM F1947-2010 Standard Practice for Installation of Folded Poly (Vinyl Chloride) (PVC) Pipe into Existing Sewers and Conduits

ASTM F1867-2012 Standard Practice for Installation of Folded/Formed Poly (Vinyl Chloride) (PVC) Pipe Type A for Existing Sewer and Conduit Rehabilitation

Reason: The current IPC includes provisions for replacement of underground sewers by pipe bursting or the installation of new pipe in an open cut trench. This proposal introduces a different method for sewer rehabilitation which is similar to pipe bursting. Fold and form is a method where a PVC pipe is manufactured in a plant to either ASTM F1504 or ASTM F1871. The pipe is heated and collapsed to form a roll for transport to the worksite. Once on site the pipe is heated and pulled into an existing sewer pipe which is in need of rehabilitation. The new pipe is then expanded and installed per ASTM F1947 or ASTM F1867. This proposal also includes sections similar to Section 717 to put the sewer line back in service. This proposal will provide for an alternative to open cut and pipe bursting methods and give owners and municipalities additional means to repair a deteriorating system.

Cost Impact: Will not increase the cost of construction
This proposal provides another option for sewer rehabilitation/replacement. It is estimated that pipe bursting and fold and form methods are approximatley 60% of the cost of open cut installation. These methods offer significant savings as well as less impact on the surrounding area.

P205-15 Part I : 718 (NEW)-GILL5952

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: The size of 4 to 6 inches should be corrected to what the standard indicates as the capability. Installation of the products need to be better addressed.

Assembly Action : None

Analysis. For staff analysis of the content of ASTM F1871-2011, ASTM F1504-2014, ASTM F1947-2010 and ASTM F1867-2012 with regard to the ICC criteria for referenced standards (Section 3.6 of CP #28), please visit: http://www.iccsafe.org/wp-content/uploads/2015-Proposed-Standards-Group-A-Final.pdf

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Individual Consideration Agenda

Public Comment 1:

Proponent : Larry Gill, representing IPEX USA LLC requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

718.2 Applicability The replacement of building sewer piping by PVC fold and form methods shall be limited to gravity drainage piping of sizes ~~6~~ 4 inches (102mm) to 18 inches (~~152mm~~ 457mm)~~ and smaller~~. The replacement piping shall be of the same nominal size as the existing piping.

718.5 Installation ~~Pipe complying with ASTM F1504~~ The piping sections to be replaced shall be cleaned and flushed. Remediation shall be ~~installed in accordance with ASTM F1947. Pipe complying with ASTM F1871 shall be installed in accordance with ASTM F1867~~ performed where there is groundwater infiltration, roots, collapsed pipe, dropped joints, offsets more that 12 percent of the inside pipe diameter or other obstructions.

Modify standard(s) as follows:

~~ASTM F1871-2011 Standard Specification for Folded/Formed Poly (Vinyl Chloride) Pipe Type A for Existing Sewer and Conduit Rehabilitation~~

~~ASTM F1504-2014 Standard Specification for Folded Poly(Vinyl Chloride) (PVC) Pipe for Existing Sewer and Conduit Rehabilitation~~

ASTM F1947-2010 Standard Practice for Installation of Folded Poly (Vinyl Chloride) (PVC) Pipe into Existing Sewers and Conduits

ASTM F1867-2012 Standard Practice for Installation of Folded/Formed Poly (Vinyl Chloride) (PVC) Pipe Type A for Existing Sewer and Conduit Rehabilitation

Commenter's Reason: Identical changes to the IPC and the IRC were proposed for Fold and Form PVC. The IPC disapproved the proposal due to an error related to sizing and concerns that the installation needed to be better addressed. These comments were used to floor modify the IRC proposal and the modified proposal was approved by the IRC. This public comment repeats the proposal which was approved by the IRC. The sizes have been corrected and the installation requirements have been written directly into the Code section 718.5. The installation standards that were in the original submittal have been deleted as they are no longer needed.

P205-15 Part I

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

P205-15 Part II

3011 (New), Chapter 44

Proposed Change as Submitted

Proponent : Larry Gill, representing IPEX USA LLC (larry.gill@ipexna.com)

2015 International Residential Code

Add new text as follows:

SECTION 3011
REPLACEMENT OF UNDERGROUND SEWERS BY PVC FOLD AND FORM METHODS

3011.1 General This section shall govern the replacement of existing building sewer piping by PVC Fold and Form methods.

3011.2 Applicability The replacement of building sewer piping by PVC Fold and Form methods shall be limited to gravity drainage piping 4 inches (152MM) to 18 inches (457mm). The replacement piping shall be of the same nominal size as the existing piping.

3011.3 Pre-installation inspection The existing piping sections to be replaced shall be inspected internally by a recorded video camera survey. The survey shall include notations of the position of cleanouts and the depth of connections to the existing piping.

3011.4 Pipe The replacement piping shall be manufactured in complaince with ASTM F1871 or ASTM F1504.

3011.5 Installation The piping sections to be replaced shall be cleaned and flushed. Remediation shall be performed where there is groundwater infiltration, roots, collapsed pipe, dropped joints, offsets more than 12% of the inside pipe diameter or other obstructions.

3011.6 Cleanouts Where the existing building sewer did not have cleanouts meeting the requirements of this code, cleanout fittings shall be installed as required by this code.

3011.7 Post-installation inspection The completed replacement piping shall be inspected internally by a recorded video camera survey. The video survey shall be reviewed and approved by the code official prior to pressure testing of the replacement piping system.

3011.8 Pressure testing The replacement piping system as well as the connections to the replacement piping shall be tested in accordance with Section P2503.4.

Add new standard(s) as follows:

ASTM F1871 - 2011 Standard Specification for Folded/Formed Poly (Vinyl Chloride) Pipe Type A for Existing Sewer and Conduit Rehabilitation

ASTM F1504 - 2014 Standard Specification for Folded Poly(Vinyl Chloride)

(PVC) Pipe for Existing Sewer and Conduit Rehabilitation

ASTM F1947 - 2010 Standard Practice for Installation of Folded Poly (Vinyl Chloride) (PVC) Pipe into Existing Sewers and Conduits

ASTM F1867 - 2012 Standard Practice for Installation of Folded/Formed Poly (Vinyl Chloride) (PVC) Pipe Type A for Existing Sewer and Conduit Rehabilitation

Reason: The current IPC includes provisions for replacement of underground sewers by pipe bursting. This proposal introduces a different method for sewer rehabilitation. Fold and form is a method where a PVC pipe is manufactured in a plant to either ASTM F1504 or ASTM F1871. The pipe is heated and collapsed to form a roll for transport to the worksite. Once on site the pipe is heated and pulled into an existing sewer pipe which is in need of rehabilitation. The new pipe is then expanded and installed per ASTM F1947 or ASTM F1867. This proposal also includes sections similar to Section P3010 to put the sewer line back in service. This proposal will provide an alternative to open cut and pipe bursting methods and give owners and municipalities additional means to repair a deteriorating system.

Cost Impact: Will not increase the cost of construction
No cost impact. It is estimated that pipe bursting and fold and form methods are approximately 60% of the cost of open cut installations. These methods offer significant savings as well as less impact on the surrounding area.

Analysis: A review of the standard proposed for inclusion in the code, ASTM F1871-2011, ASTM F1504-2014, ASTM F1947-2010 and ASTM F1867-2012, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P205-15 Part II : P3011 (New)-GILL4924

Public Hearing Results

Part II

Committee Action: Approved as Modified

Modification:

P3011.2 Applicability. The replacement of building sewer piping by PVC Fold and Form methods shall be limited to gravity drainage piping in sizes ~~6~~4 inches (~~152~~102 mm) ~~and smaller~~to 18 inches (457 mm). The replacement piping shall be of the same nominal size as the existing piping.

P3011.5 Installation. ~~Piping complying with ASTM F1504~~The piping sections to be replaced shall be ~~installed in accordance with ASTM F1947~~cleaned and flushed. ~~Piping complying with ASTM ASTM F1F1871~~ Remediation shall be ~~installed in accordance with ASTM F1867~~ performed where there is

groundwater infiltration, roots, collapsed pipe, dropped joints, offsets more than 12 percent of the inside pipe diameter or other obstructions.

Reference Standards:

ASTM F1871 - 2011 Standard Specification for Folded/Formed Poly (Vinyl Chloride) Pipe Type A for Existing Sewer and Conduit Rehabilitation
ASTM F1504 - 2014 Standard Specification for Folded Poly(Vinyl Chloride) (PVC) Pipe for Existing Sewer and Conduit Rehabilitation
~~ASTM F1947 - 2010 Standard Practice for Installation of Folded Poly (Vinyl Chloride) (PVC) Pipe into Existing Sewers and Conduits~~
~~ASTM F1867 - 2012 Standard Practice for Installation of Folded/Formed Poly (Vinyl Chloride) (PVC) Pipe Type A for Existing Sewer and Conduit Rehabilitation~~

Committee Reason: For the Modifcation only:

The size of piping that this process can be used on was corrected to allow its use for larger piping systems that could exist for IRC buildings.

For the proposal As Modified:

The committee agreed with the proponent's reason statement.

Assembly Action : None

Analysis. For staff analysis of the content of ASTM F1871-2011, ASTM F1504-2014, ASTM F1947-2010 and ASTM F1867-2012 with regard to the ICC criteria for referenced standards (Section 3.6 of CP #28), please visit: http://www.iccsafe.org/wp-content/uploads/2015-Proposed-Standards-Group-A-Final.pdf

P214-15

804.1, 804.2 (New)

Proposed Change as Submitted

Proponent : Brian Conner, Charlotte Pipe and Foundry, representing Charlotte Pipe and Foundry (bconner@charlottepipe.com)

2015 International Plumbing Code

Revise as follows:

804.1 General. The ~~materials and~~ methods utilized for the construction and installation of indirect waste pipes and systems shall comply with the applicable provisions of Chapter 7.

Add new text as follows:

804.2 Special waste pipe, fittings and components. Pipes ,fittings and components receiving or intended to receive the discharge of any fixture into which acid or corrosive chemicals are placed shall be constructed of CPVC, high silicon iron, PP, PVDF, chemical resistant glass, or glazed ceramic materials.

Reason: Sanitary and chemical drainage are inherently different applications. The purpose of this proposed change is to clarify the allowable materials which are specifically listed for chemical drainage applications.

Cost Impact: Will not increase the cost of construction
This change will not increase the cost of construction as special wastes have alwaus required special piping of one of those types..

P214-15 : 804.1-CONNER5388

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Not all of these piping materials are suitable for any type of chemical waste. This section needs to indicate that the manufacturer of the piping materials needs to provide guidance on what type of material should be chosen for each application.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Brian Conner, representing CPF (bconner@charlottepipe.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Plumbing Code

~~804.2~~ 803.3 Special waste pipe, fittings and components. Pipes~~,~~ fittings and components receiving or intended to receive the discharge of any fixture into which acid or corrosive chemicals are placed shall be constructed of CPVC, high silicon iron, PP, PVDF, chemical resistant glass, or glazed ceramic materials.

Commenter's Reason: The code does not provide any direction as to what materials are approved for chemical waste drainage. The addition of this section was merely to clarify what materials are approved to be used in chemical drainage systems. It would still be up to the installer or specifying engineer to decide what piping system is appropriate to use with the chemicals that will be conveyed. All manufacturers of chemical waste piping systems offer guidance in this area.
I would like the ICC Governmental Voters to approve this proposal as modified.

P214-15

P215-15 Part I

903.1, 903.1.1 (New), 903.1.2 (New), 903.1.3 (New), 903.1.4 (New), 903.6

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Solar City (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

903.1 ~~**Roof extension.**~~ **Vent pipes terminating outdoors.** ~~Open vent~~ Vent pipes ~~that extend through a roof~~ terminating outdoors shall be ~~terminated not less than [**NUMBER**] inches (mm) above~~ extended to the outdoors through the roof~~. Where~~ or a ~~roof is to be used for assembly or as a promenade, observation deck, sunbathing deck or similar purposes, open vent pipes shall terminate not less than 7 feet (2134 mm) above~~ side wall of the ~~roof~~ building in accordance with one of the methods identified in Sections 903.1.1 through 903.1.4.

Add new text as follows:

903.1.1 Roof extension. Open vent pipes that extend through a roof and that do not meet the conditions of Section 902.1.2 or Section 903.1.3 shall terminate not less than [NUMBER] inches (mm) above the roof.

903.1.2 Roof used for recreational uses. Where a roof is to be used for assembly or as a promenade, observation deck, sunbathing deck or similar purposes, open vent pipes shall terminate not less than 7 feet (2134 mm) above the roof.

903.1.3 Roof extension covered. Where an open vent pipe terminates above a sloped roof and is covered by either a roof-mounted panel such as a solar collector or photovoltaic panel mounted over the vent opening, or by a roof element such as an architectural feature or a decorative shroud, the vent pipe shall terminate not less than 2 inches (51 mm) above the roof surface. Such roof elements shall be designed to prevent the adverse effects of snow accumulation and wind on the function of the vent. The placement of a panel over a vent pipe and the design of a roof element covering the vent pipe shall provide for an open area for the vent pipe to the outdoors that is not less than the area of the pipe, as calculated from the inside diameter of the pipe. Such vent terminals shall be protected by a method that prevents birds and rodents from entering or blocking the vent pipe opening.

903.1.4 Side wall vent terminal. Vent terminals extending through the wall shall terminate not closer than 10 feet (3048 mm) from a lot line and not less than 10 feet (3048 mm) above the highest grade elevation within 10 feet (3048 mm) in any direction horizontally of the vent terminal. Vent pipes shall not terminate under the overhang of a structure where the overhang includes soffit vents. Such vent terminals shall be protected by a method that prevents birds and rodents from entering or blocking the vent pipe opening and that does not reduce the open area of the vent pipe.

Delete without substitution:

~~**903.6 Extension through the wall.** Vent terminals extending through the wall shall terminate at a point not less than 10 feet (3048 mm) from a lot line and not less than 10 feet (3048 mm) above average ground level. Vent terminals shall not terminate under the overhang of a structure with soffit vents. Side wall vent terminals shall be protected to prevent birds or rodents from entering or blocking the vent opening.~~

Reason: This proposed change reorganizes the section regarding the vent terminal. There are currently three options for a vent terminal, extending the vent (number) inches or more above the roof, extending the vent more than 7 feet above the roof when the roof is used for entertainment, or extending the vent through the side wall. However, the three requirements are separated between multiple sections. This makes the requirement readily identifiable in a section that presents all the options in one main section.
A fourth option for terminating the vent has been included. The fourth option would allow the vent to terminate 2 inches above a sloped roof when protected by a covering. This would allow photovoltaic solar collectors to be installed over vent terminals. It would also allow other protected vent terminals, such as architectural features that hide the vent for aesthetic purposes.

The size, length, and location of vent terminals has been a subject matter that has been greatly discussed over the last century. There are many myths, innuendoes, theories, and hypothesis regarding vent terminals. One of the most complete papers on vent terminals was published by the National Bureau of Standards (NBS) in 1954, entitled, "Frost Closure of Roof Vents in Plumbing Systems," authored by Nerbert Eaton and Robert Wyly. Most of the current code requirements originate from the recommendations of this paper.

The NBS paper investigated plumbing roof vents and their termination throughout North America. Identified as a major concern is the frost closure of the vent terminal. Other concerns included snow blockage, shearing off of the vent terminal, and rainwater entrance.

Prior to this paper, it was largely alluded that the reason for a minimum size of 1-1/4 inch and a termination above the roof surface was to prevent a bird from building a nest and laying an egg to block off the vent. To this day, birds building nests in vents is a concern. However, that concern is more related to side wall venting that provides an easy opening for a bird to build a nest.

When a vent terminates lower to the roof, measures must be taken to prevent a bird from building a nest around the vent pipe and blocking it off. Increasing the size of the vent is one means used to avoid a bird's nest. Screening and vent covers also are used to prevent birds from building a nest.

The more pressing issue is how far above the roof a vent should terminate. Two issues of importance are water tightness of the flashing and preventing rainwater entrance into the plumbing vent. Modern day flashings can make the roof penetration water tight at much lower heights, including a termination 2 inches above the roof.

The NBS report suggested a minimum of 2 inch penetration above the roof to prevent rainwater from entering the plumbing vent. It is recognized that a flat roof can have a greater accumulation of water hence the need for the vent to be at a higher elevation. Typically secondary roof drains are located between 2 and 4 inches above the roof. Thus, the vent terminal would have to be located at a higher height which is the reason for maintaining a minimum of inserting the appropriate number of inches above the roof for a flat roof.

The NBS report identified a vent terminal used in Saskatoon, Canada that terminates at the sloped roof. There was no extension above the roof. This was found to be extremely effective in preventing frost closure. As the NBS report states, the closer the vent terminates to the roof, the lower the possibility of frost closure. The report also found that by making the vent a minimum of 3 inch in diameter, frost closure that impacts the performance of the venting system was avoided.

Snow accumulation has been a subject of more recent discussions regarding vent

terminals. However, snow accumulation was addressed in the NBS report. The NBS report found that while snow may completely cover the vent terminal, the snow eventually melts from the heated vapors emanating out of the vent. Prior to the snow melting, the NBS report found that the snow cover did not impact the performance of the vent. This makes sense since the purpose of the vent is to balance the pressure in the drainage system with atmospheric pressure. The snow cover is not dense enough to prevent the balancing of pressure in the piping system.

The current code requires the vent to terminate at a height specified by the jurisdiction. The Residential Code requires the termination to be 6 inches above the anticipated snow cover. The requirement add the local value remains intact. However, when the vent is covered, such as by a solar panel or architectural feature, it cannot be covered by snow such that the vent doesn't perform properly. Thus, the vent could terminate at a 2 inch height above a sloped roof.

In the mountain west, shearing of the roof vent is a problem when the snow and ice melt and slide off of sloped roofs. By extending the vent higher through the roof, there is a greater force applied on the vent that can result in the pipe being sheared off. If the vent is lowered, the force on the vent during snow and ice slides is also lowered. This may reduce the shearing incidents of vent pipes. However, that is not part of the reason for lowering the vent terminal height. The vent would be protected if installed at a lower height. Hence, the snow and ice slides would have little to no impact on the vent since it is covered.

Plumbing contractors in the mountain west with heavy snow and ice accumulations have found that the more practical solution is to extend the vent through the roof closer to the peak of the roof. Thus, the force from sliding snow and ice is lowered. This has not been addressed in this code change and is more of a regional issue addressed by knowledgeable local contractors.

The remaining issue that is not often addressed for vent terminals is the impact of wind. During windy conditions, the vent terminal can create a reduced pressure zone that siphons the trap seal. This is often called a Venturi effect. The other concern is downdrafts that can increase the pressure in the drainage system. However, downdrafts have not had a major impact on the drainage system based on the termination height above the roof. While the possibility exists that a lower vent termination height could result in higher wind downdrafts, this has not proven to be the case. However, the code requirement addresses downdrafts by requiring the covering to prevent any adverse impact from wind.

What the plumbing profession must acknowledge is that solar is a viable source of energy for a building. As such, accommodations must be made to allow for the maximum area of roof coverage with solar panels. This may require the adjustment in the height of the vent terminal.

While accommodations must be made, there cannot be a sacrifice of public health. The lowering of the vent terminal to 2 inches on a sloped roof will not impact public health. This was proven by the NBS study published in 1954. Furthermore, modern building practices will result in a water tight vent terminal that will perform as intended.

Bibliography: "*Frost Closure of roof Vents in Plumbing Systems*," Herbert N. Eaton and Robert S. Wyly, BMS Report 142, published 1954, United States Department of Commerce, National Bureau of Standards.

National Plumbing Code Handbook, Standards and Design Information, Vincent T. Manas, P.E., copyright 1957, McGraw-Hill Book Company

Cost Impact: Will not increase the cost of construction
This change provides options to the code user. There are no cost implications.

P215-15 Part I : 903.1-BALLANCO5902

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: There is concern about airflow over a covered vent pipe. Too short of vent pipe above the roof could invite entry by rodents. Vent piping is sometimes used for drain clearing so have covered vents would be a big problem for that type of operation. too short of vent might cause problems with roof flashing replacement.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Solar City (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: The Committee's reasons for denial of this change were addressed in the supporting statement. However, the technical substantiation appears to have been ignored. There is no problem reducing the height of the vent with regard to air movement. Hence, the first statement by the committee is incorrect and merely conjecture.

The Committee's statement regarding rodents is bizarre since the proposed language states, "Such vent terminals shall be protected by a method that prevents birds and rodents from entering or blocking the vent pipe opening." Apparently, this requirement was missed by the Committee.

Another statement by the Committee that the vent terminal may be used as a cleanout is also inappropriate. Cleanouts are required by the code. A vent terminal is NOT a cleanout.

The final statement that it may be difficult to flash a lower vent terminal is also preposterous. There are many flashings available for vents that only penetrate the roof 2 inches. The flashing provide an acceptable seal to prevent leakage.

Part 2 of this change was recommended for approval. This requirement is very important for advancing the use of photovoltaic solar panels. There is no technical justification for not allowing a modification to the vent through the roof.

P215-15 Part I

P215-15 Part II

P3103.1, P3103.1.1 (New), P3101.1.2 (New), P3103.1.3 (New), P3103.1.4 (New), P3103.6

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Solar City (JBENGINEER@aol.com)

2015 International Residential Code

Revise as follows:

P3103.1 ~~**Roof extension.**~~ **Vent pipes terminating outdoors.** ~~Open vent~~ Vent pipes ~~that extend through a roof~~ terminating outdoors shall be ~~terminated not less than 6 inches (152 mm) above~~ extended to the outdoors through the roof or ~~6 inches (152 mm) above~~ a side wall of the ~~anticipated snow accumulation, whichever is greater. Where a roof is to be used for assembly, as a promenade, observation deck or sunbathing deck or for similar purposes, open vent pipes shall terminate not less than 7 feet (2134 mm) above~~ building in accordance with one of the ~~roof~~ methods identified in Sections P3103.1.1 through P3103.1.4.

Add new text as follows:

P3103.1.1 Roof extension. Open vent pipes that extend through a roof and that do not meet the conditions of Section P3101.1.2 or Section P3101.1.3 shall terminate not less than 6 inches (150 mm) above the roof or 6 inches (150 mm) above the anticipated snow accumulation, which ever is greater.

P3101.1.2 Roof used for recreational puposes. Where a roof is to be used for assembly or as a promenade, observation deck, sunbathing deck or similar purposes, open vent pipes shall terminate not less than 7 feet (2134 mm) above the roof.

P3103.1.3 Roof extension covered. Where an open vent pipe terminates above a sloped roof and is covered by either a roof-mounted panel such as a solar collector or photovoltaic panel mounted over the vent opening, or by a roof element such as an architectural feature or a decorative shroud, the vent pipe shall terminate not less than 2 inches (51 mm) above the roof surface. Such roof elements shall be designed to prevent the adverse effects of snow accumulation and wind on the function of the vent. The placement of a panel over a vent pipe and the design of a roof element covering the vent pipe shall provide for an open area for the vent pipe to the outdoors that is not less than the area of the pipe, as calculated from the inside diameter of the pipe. Such vent terminals shall be protected by a method that prevents birds and rodents from entering or blocking the vent pipe opening.

P3103.1.4 Side wall vent terminal. Vent terminals extending through the wall shall terminate not closer than 10 feet (3048 mm) from a lot line and not less than 10 feet (3048 mm) above the highest grade elevation within 10 feet (3048 mm) in any direction horizontally of the vent terminal.

Vent pipes shall not terminate under the overhang of a structure where the overhang includes soffit vents. Such vent terminals shall be protected by a method that prevents birds and rodents from entering or blocking the vent pipe opening and that does not reduce the open area of the vent pipe.

Delete without substitution:

~~**P3103.6 Extension through the wall.** Vent terminals extending through the wall shall terminate not less than 10 feet (3048 mm) from the *lot line* and 10 feet (3048 mm) above the highest adjacent *grade* within 10 feet (3048 mm) horizontally of the vent terminal. Vent terminals shall not terminate under the overhang of a structure with soffit vents. Side wall vent terminals shall be protected to prevent birds or rodents from entering or blocking the vent opening.~~

Reason: This proposed change reorganizes the section regarding the vent terminal. There are currently three options for a vent terminal, extending the vent 6 inches or more above the roof, extending the vent more than 7 feet above the roof when the roof is used for entertainment, or extending the vent through the side wall. However, the three requirements are separated between multiple sections. This makes the requirement readily identifiable in a section that presents all the options in one main section.
A fourth option for terminating the vent has been included. The fourth option would allow the vent to terminate 2 inches above a sloped roof when protected by a covering. This would allow photovoltaic solar collectors to be installed over vent terminals. It would also allow other protected vent terminals, such as architectural features that hide the vent for aesthetic purposes.

The size, length, and location of vent terminals has been a subject matter that has been greatly discussed over the last century. There are many myths, innuendoes, theories, and hypotheses regarding vent terminals. One of the most complete papers on vent terminals was published by the National Bureau of Standards (NBS) in 1954, entitled, "Frost Closure of Roof Vents in Plumbing Systems," authored by Nerbert Eaton and Robert Wyly. Most of the current code requirements originate from the recommendations of this paper.

The NBS paper investigated plumbing roof vents and their termination throughout North America. Identified as a major concern is the frost closure of the vent terminal. Other concerns included snow blockage, shearing off of the vent terminal, and rainwater entrance.

Prior to this paper, it was largely alluded that the reason for a minimum size of 1-1/4 inch and a termination above the roof surface was to prevent a bird from building a nest and laying an egg to block off the vent. To this day, birds building nests in vents is a concern. However, that concern is more related to side wall venting that provides an easy opening for a bird to build a nest.

When a vent terminates lower to the roof, measures must be taken to prevent a bird from building a nest around the vent pipe and blocking it off. Increasing the size of the vent is one means used to avoid a bird's nest. Screening and vent covers also are used to prevent birds from building a nest.

The more pressing issue is how far above the roof a vent should terminate. Two issues of importance are water tightness of the flashing and preventing rainwater entrance into the plumbing vent. Modern day flashings can make the roof penetration water tight at much lower heights, including a termination 2 inches above the roof.

The NBS report suggested a minimum of 2 inch penetration above the roof to prevent rainwater from entering the plumbing vent. It is recognized that a flat roof can have a greater accumulation of water hence the need for the vent to be at a higher elevation. Typically secondary roof drains are located between 2 and 4 inches above the roof. Thus, the vent terminal would have to be located at a higher height which is the reason for maintaining a minimum of 6 inches above the roof for a flat roof.

The NBS report identified a vent terminal used in Saskatoon, Canada that terminates

at the sloped roof. There was no extension above the roof. This was found to be extremely effective in preventing frost closure. As the NBS report states, the closer the vent terminates to the roof, the lower the possibility of frost closure. The report also found that by making the vent a minimum of 3 inch in diameter, frost closure that impacts the performance of the venting system was avoided.

Snow accumulation has been a subject of more recent discussions regarding vent terminals. However, snow accumulation was addressed in the NBS report. The NBS report found that while snow may completely cover the vent terminal, the snow eventually melts from the heated vapors emanating out of the vent. Prior to the snow melting, the NBS report found that the snow cover did not impact the performance of the vent. This makes sense since the purpose of the vent is to balance the pressure in the drainage system with atmospheric pressure. The snow cover is not dense enough to prevent the balancing of pressure in the piping system.

The current code requires the vent to terminate 6 inches above the anticipated snow cover. That requirement remains intact. However, when the vent is covered, such as by a solar panel or architectural feature, it cannot be covered by snow such that the vent doesn't perform properly. Thus, the vent could terminate at a 2 inch height above a sloped roof.

In the mountain west, shearing of the roof vent is a problem when the snow and ice melt and slide off of sloped roofs. By extending the vent higher through the roof, there is a greater force applied on the vent that can result in the pipe being sheared off. If the vent is lowered, the force on the vent during snow and ice slides is also lowered. This may reduce the shearing incidents of vent pipes. However, that is not part of the reason for lowering the vent terminal height. The vent would be protected if installed at a lower height. Hence, the snow and ice slides would have little to no impact on the vent since it is covered.

Plumbing contractors in the mountain west with heavy snow and ice accumulations have found that the more practical solution is to extend the vent through the roof closer to the peak of the roof. Thus, the force from sliding snow and ice is lowered. This has not been addressed in this code change and is more of a regional issue addressed by knowledgeable local contractors in the area.

The remaining issue that is not often addressed for vent terminals is the impact of wind. During windy conditions, the vent terminal can create a reduced pressure zone that siphons the trap seal. This is often called a Venturi effect. The other concern is downdrafts that can increase the pressure in the drainage system. However, downdrafts have not had a major impact on the drainage system based on the termination height above the roof. While the possibility exists that a lower vent termination height could result in higher wind downdrafts, this has not proven to be the case. However, the code requirement addresses downdrafts by requiring the covering to prevent any adverse impact from wind.

What the plumbing profession must acknowledge is that solar is a viable source of energy for a building. As such, accommodations must be made to allow for the maximum area of roof coverage with solar panels. This may require the adjustment in the height of the vent terminal. This section will also coordinate with the new requirements found in Chapter 9 on solar panels.

While accommodations must be made, there cannot be a sacrifice of public health. The lowering of the vent terminal to 2 inches on a sloped roof will not impact public health. This was proven by the NBS study published in 1954. Furthermore, modern building practices will result in a water tight vent terminal that will perform as intended.

Bibliography: "*Frost Closure of roof Vents in Plumbing Systems*," Herbert N. Eaton and Robert S. Wyly, BMS Report 142, published 1954, United States Department of Commerce, National Bureau of Standards.
National Plumbing Code Handbook, Standards and Design Information, Vincent T. Manas, P.E., copyright 1957, McGraw-Hill Book Company

Cost Impact: Will not increase the cost of construction
This change provides options. As such, there is no cost implication.

P215-15 Part II :
P3103.1-BALLANCO4130

Public Hearing Results

Part II

Committee Action: Approved as Submitted

Committee Reason: The committee agreed with the proponent's published reason statement.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Beahm, Warren County Virginia, representing Virginia Building Code Official Association and Virginia Plumbing and Mechanical Inspectors Association requests Disapprove.

Commenter's Reason: The airflow over a covered vent pipe has not evaluated. Too short of vent pipe above the roof could invite entry by rodents. Vent piping is sometimes used for drain clearing so have covered vents would be a problem for that type of operation. Too short of vent might cause problems with roof flashing replacement.

Public Comment 2:

Proponent : John LaTorra, representing Tri-Chapter Code Committee (jtlatorra@gmail.com) requests Disapprove.

Commenter's Reason: The identical proposal in Part I was dissaproved by the IPC Committee. Part II was approved as submitted by the IRC Plumbing Committee. If these actions were to be sustained, this would create a conflict between the IPC and the IRC Plumbing provisions. We are not aware of any reason why there should be a difference between the two codes in regards to plumbing vent terminations. We also support the reasons the IPC Commitee disapproved this proposal. A 2" vent extension will not be adequate for many roof flashings available. A 2" vent extension may lead to increased entry by rodents. A 2" vent extension covered by a solar panel will probably increase the potential for nesting. A vent extension, particularly serving a water closet and covered by a solar panel, would eliminate a common opportunity for drain cleaning.

P215-15 Part II

P217-15

Table 909.1 (New), 909.2

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Delete and substitute as follows:

TABLE 909.1
MAXIMUM LENGTH OF FIXTURE DRAIN
FROM FIXTURE TRAP TO VENT CONNECTION[a,b]
(FEET)

Fixture drain pipe size (inches)	Vent connection at a horizontal drain pipe			Vent connection at a vertical drain pipe					
				Sanitary tee fitting fixture drain connection to the vertical drain pipe			Tee-wye fitting fixture drain connection to the vertical drain pipe[c]		
	Slope of fixture drain[d] (inches per foot)			Slope of fixture drain[d] (inches per foot)			Slope of fixture drain[d] (inches per foot)		
	1/8	1/4	1/2	1/8	1/4	1/2	1/8	1/4	1/2
1-1/4	NP	5	2.5	NP	3.5	2	NP	1.5	1
1-1/2	NP	6	3	NP	5	3	NP	4	2
2	NP	8	4	NP	6	4	NP	4.5	4
3	24	12	6	10	8	6	6	6	6
4	32	16	8	12	10	8	8	8	8

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 inch per foot = 83.3 mm/m.

a. Developed length.

b. NP = Not permitted

c. A tee-wye fitting is also known as a combination-wye-and-eight-bend fitting.

d. Fixture drain shall be at uniform slope.

Delete without substitution:

~~**909.2 Venting of fixture drains.** The total fall in a *fixture drain* due to pipe slope shall not exceed the diameter of the *fixture drain*, nor shall the vent connection to a *fixture drain*, except for water closets, be below the weir of the trap.~~

Reason: When table 909.1 was revised, it only incorporated some of the provision in the report on self siphonage, BMS 126, published in 1951. The report identified that fixture could connect to tee wye fittings. However, the distance from trap to vent is greatly reduced. This change includes the allowance of a connection to a vertical drain through a tee wye.
The other change that is necessary is to address when a pitch greater than ¼ inch per foot is used. The greater the pitch, the shorter the length between the trap and the vent.
This table has been used in the State of Wisconsin for more than 20 years. The distances are consistent with the results of the self siphonage report from the National Bureau of Standards.
Section 909.2 must be deleted to be consistent with the revised table. Otherwise, the connection to a tee wye would not be permitted.

Cost Impact: Will not increase the cost of construction
This will reduce the cost of construction when a vent distance can be extended.

P217-15 : T909.2-BALLANCO3385

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: A "t-wye" designated fitting was introduced in this table but these fittings are not addressed in the code.

Assembly Action :

None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Plumbing Code

TABLE 909.1
MAXIMUM LENGTH OF FIXTURE DRAIN FROM FIXTURE TRAP TO VENT CONNECTION[a,b]
(FEET)

Fixture drain pipe size (inches)	Vent connection at a horizontal drain pipe			Vent connection at a vertical drain pipe					
				Sanitary tee fitting fixture drain connection to the vertical drain pipe			~~Tee-wye~~ Combination wye and eighth bend fitting fixture drain connection to the vertical drain pipe[c]		
	Slope of fixture drain[d c] (inches per foot)			Slope of fixture drain[d c] (inches per foot)			Slope of fixture drain[d c] (inches per foot)		
	1/8	1/4	1/2	1/8	1/4	1/2	1/8	1/4	1/2
1-1/4	NP	5	2.5	NP	3.5	2	NP	1.5	1
1-1/2	NP	6	3	NP	5	3	NP	4	2

2	NP	8	4	NP	6	4	NP	4.5	4
3	24	12	6	10	8	6	6	6	6
4	32	16	8	12	10	8	8	8	8

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 inch per foot = 83.3 mm/m.

a. Developed length.

b. NP = Not permitted

c. ~~A tee-wye fitting is also known as a combination wye-and-eight-bend fitting.~~ Fixture drain at uniform slope.

~~d. Fixture drain at uniform slope.~~

Commenter's Reason: The Committee did not have a problem with the technical content of this change. The only concern was with the use of the term "tee-wye." The proposed modification address that concern by changing tee-wye to combination wye and eighth bend.

While some of the fitting standards use the term tee-wye for these types of fittings, other standards only identify the fitting as a combination wye and eighth bend. Since all standards use the term combination wye and eighth bend, this is the correct term to use in the table. Furthermore, this is the term used in the code.

P217-15

P220-15 Part I

915.1

Proposed Change as Submitted

Proponent : Billy Smith, American Society of Plumbing Engineers Legislative Committee, representing American Society of Plumbing Engineers Legislative Committee (bsmith@aspe.org)

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART II IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART I.

2015 International Plumbing Code

Revise as follows:

915.1 Type of fixtures. A *combination waste and vent system* shall not serve fixtures other than floor drains, sinks, lavatories and drinking fountains. *Combination waste and vent systems* shall not receive the discharge from a ~~food waste disposer or~~ clinical sink.

Reason: The American Society of Plumbing Engineers supports the efforts of the American Society of Plumbing Engineer Research Foundation (ASPE RF) regarding plumbing research to justify plumbing code requirements. The ASPE Legislative Committee reviewed the ASPE RF research regarding the impact of food waste disposers on combination waste and vent systems. Based on the technical findings of this research, there is no technical justification for placing a limitation on the discharge of food waste disposers to combination waste and vent systems. The Research Report of the findings has been published and is available for review on the ASPE website,
http://aspe.org/sites/default/files/webfm/ASPERF/rf_report_foodwaste.pdf

The report is found under the Research Foundation heading. It would appear that the original limitation on food waste disposers was based on a perceived problem. Having researched the original code change, there was no research nor field problems identified to support the limitation. Without proper research or field experience, the limitation should not have been included in the code.

Cost Impact: Will not increase the cost of construction
It's going to allow an installation that previously wasn't permitted thus lowering the cost of production.

P220-15 Part I : 915.1-SMITH4838

Public Hearing Results

Part I

The following is errata (the reason was omitted in publication). This was not posted on the ICC website :

Reason: The American Society of Plumbing Engineers

supports the efforts of the American Society of Plumbing Engineer Research Foundation (ASPE RF) regarding plumbing research to justify plumbing code requirements. The ASPE Legislative Committee reviewed the ASPE RF research regarding the impact of food waste disposers on combination waste and vent systems. Based on the technical findings of this research, there is no technical justification for placing a limitation on the discharge of food waste disposers to combination waste and vent systems. The Research Report of the findings has been published and is available for review on the ASPE website,

http://aspe.org/sites/default/files/webfm/ASPERF/rf_report_foodwas

The report is found under the Research Foundation heading. It would appear that the original limitation on food waste disposers was based on a perceived problem. Having researched the original code change, there was no research nor field problems identified to support the limitation. Without proper research or field experience, the limitation should not have been included in the code.

(The remainder of the proposal is unchanged.)
(Errata already incorporated into cdpACCESS.)

Committee Action: Disapproved

Committee Reason: The proposal did not have a reason statement and there was not a link to the study provided.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: The only reason for not accepting this change was that the supporting statement was missing from the cdpACCESS. However, an errata added the supporting statement.

Part 2 of this change was recommended for approval. The ASPE RF study proved that there is no reason for restricting the connection of food waste disposers to combination waste and vent systems.

Public Comment 2:

Proponent : Max Weiss, representing Plumbing & Drainage Institute (max@weissresearch.net) requests Approve as Submitted.

Commenter's Reason:
A committee member commented (testified from the dias) negatively to this proposal; the testimony offered from the dias was procedurally unrebuttable.

The testimony cited an ASPE Research Foundation study examining the effect of food waste disposer effect on trap seal in combination waste and vent connections. The testimony incorrectly reported the findings of that study.

There was no measurable effect on trap seal integrity with discharge from a food waste disposer. The report of the study is freely available at ASPE Research Foundation at

www.aspe.org/sites/default/files/webfm/ASPE%20RF/rf_report_food%20waste.pdf.

I conducted the study and I authored the study report. If scientific validity and engineering soundness are the hallmarks of code drafting, then there is no evidence to support a decision of "dissaprove". This proposal should be "Approved as Submitted."

Max Weiss, Executive Director

Plumbing & Drainage Institute

P220-15 Part I

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

P220-15 Part II

P3111.1

Proposed Change as Submitted

Proponent : Billy Smith, American Society of Plumbing Engineers Legislative Committee, representing American Society of Plumbing Engineers Legislative Committee (bsmith@aspe.org)

2015 International Residential Code

Revise as follows:

P3111.1 Type of fixtures. A combination waste and vent system shall not serve fixtures other than floor drains, sinks and lavatories. ~~A combination waste and vent system shall not receive the discharge of a food waste disposer.~~ _

Reason: The American Society of Plumbing Engineers supports the efforts of the American Society of Plumbing Engineer Research Foundation (ASPE RF) regarding plumbing research to justify plumbing code requirements. The ASPE Legislative Committee reviewed the ASPE RF research regarding the impact of food waste disposers on combination waste and vent systems. Based on the technical findings of this research, there is no technical justification for placing a limitation on the discharge of food waste disposers to combination waste and vent systems. The Research Report of the findings has been published and is available for review on the ASPE website, http://aspe.org/sites/default/files/webfm/ASPERF/rf_report_foodwaste.pdf.

The report is found under the Research Foundation heading. It would appear that the original limitation on food waste disposers was based on a perceived problem. Having researched the original code change, there was no research nor field problems identified to support the limitation. Without proper research or field experience, the limitation should not have been included in the code.

Cost Impact: Will not increase the cost of construction
It's going to allow an installation that previously wasn't permitted thus lowering the cost of production.

P220-15 Part II :
P3111.1-SMITH5367

Public Hearing Results

Part II

Committee Action: Approved as Submitted

Committee Reason: The committee agreed with the proponent's published reason statement.

Assembly Action : None

P221-15 Part I

915.1, 915.2, 915.2.1, 915.2.2, 915.2.3, 915.2.4, 915.2.5, 915.1.1 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART II IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART I.

2015 International Plumbing Code

Revise as follows:

915.1 Type of fixtures. A *combination waste and vent system* shall ~~not~~ only serve ~~fixtures other than~~ floor drains, sinks, lavatories and drinking fountains. A *combination waste and vent system s*hall be considered to be the vent for those fixtures.The developed length of a *fixture drain* to the *combination waste and vent system* piping shall not exceed the limitations of Table 909.1.*Combination waste and vent systems* shall not receive the discharge from a food waste disposer or clinical sink.

915.2 Installation. The only vertical pipe of a *combination waste and vent system* shall be the connection between ~~the~~ a *fixture drain* and ~~the~~ a horizontal combination waste and vent pipe. The length of the vertical ~~distance~~ pipe shall not exceed 8 feet (2438 mm).

915.2.1 Slope. The slope of a horizontal combination waste and vent ~~pipe~~ piping shall not exceed one-half unit vertical in 12 units horizontal (4-percent slope) and shall not be less than that indicated in Table 704.1.

915.2.2 Size and length. The size of a combination waste and vent ~~pipe~~ piping shall be not less than that indicated in Table 915.2.2. The horizontal length of a *combination waste and vent system* shall be unlimited.

915.2.3 ~~Connection~~ Vent connection. ~~The~~ A *combination waste and vent system* shall be provided with a dry vent connected at any point within the system or the system shall connect to a horizontal drain or building drain, that serves vented fixtures located on the same floor. *Combination waste and vent systems* connecting to building drains receiving only the discharge from one or more stacks shall be provided with a dry vent. The dry vent ~~connection~~ connected to the combination waste and vent pipe shall extend vertically to a point not less than 6 inches (152 mm) above the flood level rim of the highest fixture being vented by the *combination waste and vent system* before ~~offsetting horizontally.~~ horizontal offsets in the dry vent piping are allowed.

915.2.4 Vent size. The dry vent connected to the *combination waste and vent system* shall be sized for the total *drainage fixture* unit load in accordance with Section 906.2.

Delete without substitution:

~~**915.2.5 Fixture branch or drain.** The *fixture branch* or *fixture drain* shall connect to the combination waste and vent within a distance specified in Table 909.1. The combination waste and vent pipe shall be considered the vent for the fixture.~~

Add new text as follows:

915.1.1 Single fixture systems. A horizontal *fixture drain* shall be considered to be a *combination waste and vent system* provided that the *fixture drain* size complies with Table 915.2.2.

Reason: The primary reason for this proposal is to add new Section 915.1.1 to cover the very special situation of a single fixture combination waste and vent system.

Consider a 2 inch floor drain which, by definition, has a 2 inch trap. Where the floor drain is an emergency floor drain, Table 709.1 indicates that the dfu value is zero. Where the floor drain is not emergency floor drain, Table 709.1 indicates that the dfu value is 2. Where the floor drain is intended to receive only clear-water waste from certain types of equipment, Section 709.4.1 (through note h of Table 709.1), the dfu value is 1/2. For this example, consider that the floor drain is a 2 dfu value. Now review Table 915.2.2 and determine that a 2 inch combination waste and vent pipe can accommodate up to 3 dfu. Therefore, the 2 inch pipe from the trap of the 2 inch floor drain can be its own combination waste and vent system.

However, this is not readily apparent from existing language especially when reading existing Section 915.2.5. That section seems to indicate that the length of a fixture drain to its vent connection is always limited by the trap-to-vent distances in Table 909.1. The piping from any fixture trap to the vent connection is limited in length so that the vent connection is not below the trap weir (see Section 909.1). Table 909.1 reflects the maximum length of the fixture drain at the indicated slopes so Section 909.1 is not violated. But where the fixture drain is "oversized" according to the requirements for a combination waste and vent system, then the limit on fixture drain length for these single fixture applications is meaningless. The fixture trap cannot siphon because the pipe is oversized for the intended dfu going into the drain.

For a better flow of requirements, Section 915.2.5 was merged into Section 915.1. This was important in order to move the requirement for meeting Table 909.1 before new Section 915.1.1 to make that new section make sense.

Several minor changes were made to other sections including changing pipe to piping. Pipe implies a section of pipe without fittings. A combination waste and vent system can have horizontal bends. Some have misinterpreted that "pipe" meant that a CWV system only was allowed as a "straight run" system.

Another small but important change is in 915.2. Here, pipe really does mean pipe as in a straight run of pipe in vertical direction. Adding words to the last sentence will hopefully reinforce that it is not just the distance of 8 feet but a vertical pipe not longer than 8 feet. Note the definition for VERTICAL PIPE in chapter 2. A vertical pipe could have vertical offsets and still be considered vertical.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 18.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P221-15 Part I : 915.1-SNYDER5947

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: The committee prefers the current code text. The proposed version doesn't add anything to the code.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org) requests Approve as Submitted.

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART II IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART I.

Commenter's Reason: Part II was approved for the International Residential Code. This proposal needs to be approved for continuity between the two plumbing codes. The Committee's reason statement appears to acknowledge (by absence of any negative comment) that a single fixture drain can be considered a horizontal waste and vent. The code words are not exceptionally clear about this special case so it is necessary to have the Combination Waste and Vent section include this langauge.

P221-15 Part I

P221-15 Part II

P3111.1, P3111.1.1 (New), P3111.2, P3111.2.1, P3111.2.2, P3111.2.3, P3111.2.4, P3111.3

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Residential Code

Revise as follows:

P3111.1 Type of fixtures. A combination waste and vent system shall ~~not~~ only serve ~~fixtures other than~~ floor drains, sinks , lavatories and ~~lavatories~~ drinking fountains. A combination waste and vent system shall be considered to be the vent for those fixtures. The developed length of a fixture drain to the combination waste and vent system piping shall not exceed the limitations of Table P3105.1. Combination waste and vent systems shall not receive the discharge ~~of~~ from a food waste disposer.

Add new text as follows:

P3111.1.1 Single fixture systems. A horizontal fixture drain shall be considered to be a combination waste and vent system provided that the fixture drain size complies with P3105.1.

Revise as follows:

P3111.2 Installation. The only vertical pipe of a combination waste and vent system shall be the connection between ~~the~~ a fixture drain and ~~the~~ a horizontal combination waste and vent pipe. The lenght of the vertical ~~distance~~ pipe shall be not greater than 8 feet (2438 mm).

P3111.2.1 Slope. The slope of a horizontal combination waste and vent ~~pipe~~ piping shall ~~have a slope of~~ be not greater than $^{1}/_{2}$ unit vertical in 12 units horizontal (4-percent slope)~~. The minimum slope~~ and shall not be less than that indicated in ~~accordance with~~ Section ~~P3005.3~~ P3005.2.

P3111.2.2 ~~Connection~~ Vent connection. ~~The~~ A combination waste and vent system shall be provided with a dry vent connected at any point within the system or the system shall connect to a horizontal drain or building drain, that serves vented fixtures located on the same floor. Combination waste and vent systems connecting to~~*building drains*~~ receiving only the discharge from one or more stacks shall be provided with a dry vent. The dry vent ~~connection~~ connected to the combination waste and vent pipe shall extend vertically to a point not less than 6 inches (152 mm) above the flood level rim of the highest fixture being vented by the combination waste and vent system before ~~offsetting horizontally.~~ horizontal offsets in the dry vent piping are allowed.

P3111.2.3 Vent size. The dry vent connected to the combination waste and vent system shall be sized for the total drainage fixture unit load in

accordance with Section ~~P3113.1~~ P3111.1.

Delete without substitution:

~~**P3111.2.4 Fixture branch or drain.** The fixture branch or *fixture drain* shall connect to the combination waste and vent within a distance specified in Table P3105.1. The combination waste and vent pipe shall be considered the vent for the fixture.~~

Revise as follows:

P3111.3 Size and length. The size of a combination drain and vent ~~pipe~~ piping shall be not less than that specified in Table 3111.3. The horizontal length of a combination drain and vent system shall be unlimited.

Reason: The primary reason for this proposal is to add new Section P3111.1.1 to cover the very special situation of a single fixture combination waste and vent system.
Consider a 2 inch floor drain which by definition has a 2 inch trap. Where the floor drain is an emergency floor drain, Table P3004.1 indicates that the dfu value is zero. Where the floor drain is not emergency floor drain, note b indicates the dfu unit value is the summation of dfu discharging to the floor drain. For this example, consider that the floor drain is a 2 dfu value. Now review Table P3111.3 and determine that a 2 inch combination waste and vent pipe can accommodate up to 3 dfu. Therefore, the 2 inch pipe from the trap of the 2 inch floor drain can be its own combination waste and vent system.

However, this is not readily apparent from existing language especially when reading existing Section P3111.2.4. That section seems to indicate that the length of a fixture drain to its vent connection is always limited by the trap-to-vent distances in Table P3105.1. The piping from any fixture trap to the vent connection is limited in length so that the vent connection is not below the trap weir (see Section P3105.2). Table P3105.1reflects the maximum length of the fixture drain at the indicated slopes so Section P3105.2 is not violated. But where the fixture drain is "oversized" according to the requirements for a combination waste and vent system, then the limit on fixture drain length for these single fixture applications is meaningless. The fixture trap cannot siphon because the pipe is oversized for the intended dfu going into the drain.

For a better flow of requirements, Section P3111.2.4 was merged into Section P3111.1. This was important in order to move the requirement for meeting Table P3105.1 before new Section P3111.1 to make that new section make sense.

Several minor changes were made to other sections including changing pipe to piping. Pipe implies a section of pipe without fittings. A combination waste and vent system can have horizontal bends. Some have misinterpreted that "pipe" meant that a CWV system only was allowed as a "straight run" system.

Another small but important change is in P3111.2. Here, pipe really does mean pipe as in a straight run of pipe in vertical direction. Adding words to the last sentence will hopefully reinforce that it is not just the distance of 8 feet but a vertical pipe not longer than 8 feet. Note the definition for VERTICAL PIPE in chapter 2. A vertical pipe could have vertical offsets and still be considered vertical.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 18.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P221-15 Part II :
P3111.1-SNYDER5948

Public Hearing Results

Part II

Committee Action: Approved as Submitted

Committee Reason: The committee agreed with the proponent's published reason statement.

Assembly Action : None

P231-15

413.1, 413.3, 1003.3.1

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing InSinkErator (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

413.1 Approval. Domestic food waste disposers shall conform to ASSE 1008. Domestic and commercial food waste disposers shall be listed and labeled in accordance with UL 430. Food waste disposers shall not increase the *drainage fixture unit* load on the sanitary drainage system.

413.3 Commercial food waste disposer waste outlets. Commercial food waste disposers shall be connected to a drain not less than $1^1/_2$ inches (38 mm) in diameter. Commercial food waste disposers shall be directly connected and trapped separately from any other fixtures or sink compartments.

1003.3.1 Grease interceptors and automatic grease removal devices required. A grease interceptor or automatic grease removal device shall be required to receive the drainage from fixtures and equipment with greaseladen waste located in food preparation areas, such as in restaurants, hotel kitchens, hospitals, school kitchens, bars, factory cafeterias and clubs. Fixtures and equipment shall include pot sinks, prerinse sinks; soup kettles or similar devices; wok stations; floor drains or sinks into which kettles are drained; automatic hood wash units and dishwashers without prerinse sinks. Commercial food waste disposers shall not be required to discharge to a grease interceptor or to an automatic grease removal device. Grease interceptors and automatic grease removal devices shall receive waste only from fixtures and equipment that allow fats, oils or grease to be discharged. Where lack of space or other constraints prevent the installation or replacement of a grease interceptor, one or more grease interceptors shall be permitted to be installed on or above the floor and upstream of an existing grease interceptor.

Reason: This change merely clarifies the requirements for commercial food waste disposers. Chapter 3 already requires food waste disposers to be listed and labeled. When UL 430 was added during the last code change cycle, it was only added as a reference to domestic food waste disposers. However, the standard also regulates commercial food waste disposers.
Food waste disposers are required to connect directly to the drainage system. There have been incidents whereby there was a misinterpretation of Chapter 8 and food waste disposers were required to discharge indirectly to the drainage system because they are located in a food handling establishment. By adding the word "directly" there will not be such misinterpretation.

Finally, there have been occasions where there has been a misinterpretation of Section 1003.3.1, whereby health inspectors required grease interceptors to discharge through a grease interceptor. By adding a sentence to this section, it clarifies that this is not required by this section. The added sentence could also be converted to an exception.

Cost Impact: Will not increase the cost of construction
This proposal adds clarity to the code. There is no change that impacts cost of installation.

P231-15 : 1003.3.1-BALLANCO3808

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Solids are a larger source of of fats, oils and greases and routing this flow around the grease interceptor would be in violation of EPA mandates. Lack of maintenance of a solids interceptor is not a sufficient reason for routring food wate disposer flow around a grease interceptor.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: This change is necessary to coordinate with Code Change P233-15. The Committee recommended approval of P233-15, which prohibits food waste disposers from discharging through grease interceptors

Public Comment 2:

Proponent : Max Weiss, representing Plumbing & Drainage Institute (max@weissresearch.net) requests Approve as Submitted.

Commenter's Reason: There is no single credible peer reviewed scientific, engeering study supporting piping food waste solids to a grease interceptor. There are many illustrating the benefit of food waste carbon sources at waste water treatment plants. Engineering studies on the effects of ground food wastes in the collection system cite no significant deleterious effects. [New York City; Hokaido, Japan].
Discharging solids to an interceptor violates the design purpose and certifications of a grease interceptor. There is no benefit to the collection system from requiring a commercial food waste grinder to discharge to a grease interceptor. Quite the opposite. Food wastes stored in the anaerobic environment of a grease interceptor impart more harm to the collection system than if no interceptor was present at all.

FOG content of food waste solids is about equal to human feces [20%]. However, because it is not in a free-floating state, adhesion / cohesion characteristics are not the same as free-floating FOG, for which interceptors are designed and flow with little difference than feces in the collection system.

Food solids decomposition quickly consumes entrained oxygen. When oxygen levels fall, anaerobic organisms flourish, greatly accelerating the production of hydrogen

sulfide. Hydrogen sulfide, being a gas, rises to the headspace in the interceptor where aerobic organisms reduce the hydrogen sulfide to elemental sulfuric acid increasing both air water interface "halo" corrosion and subsurface corrosion.

Food wastes no not belong in a grease interceptor by any application of sound engineering.

Max Weiss, Executive Director

Plumbing & Drainage Instiute

Public Comment 3:

Proponent : Ken Loucks, Schier Products Company, representing Schier Products Company (ken.loucks@schierproducts.com) requests Disapprove.

Commenter's Reason: There are multiple issues addressed with this proposal that should have been separated into at least two separate proposals. First under 413.1 the proposal clarifies that both domestic and commercial food waste disposal units should meet UL 430, which is a good idea. Second, though, under 1003.3.1 the proposal attempts to exempt food waste disposal units from being routed to a grease interceptor. This is in conflict with many pretreatment programs that require food waste disposal units to be routed through a grease interceptor, setting up a conflict between the plumbing code and pretreatment requirements, which the proponent actually acknowledged in his reason statement. Also, this change would require technical support as to why a food waste disposal unit should not be routed to a grease interceptor, something which the proponent failed to provide. Also, the proposal to add the language regarding food waste disposers under 1003.3.1 is the wrong place since the code contains a subsection (1003.3.2) specifically dealing with food waste disposers (food waste grinders). A change in language here would potentially conflict with requirements under subsection 1003.3.2.

P231-15

P233-15
1003.3.2

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing InSinkErator (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

1003.3.2 Food waste disposers restriction. ~~Where~~ A food waste ~~disposers connect to grease interceptors, a solids interceptor shall separate the discharge before connecting to the grease interceptor. Solids interceptors and grease interceptors shall be sized and rated for the discharge of the food waste disposers. Emulsifiers, chemicals, enzymes and bacteria~~ disposer shall not discharge ~~into the food waste disposer.~~ to a grease interceptor.

Reason: It has been well established that food waste from a disposer must not discharge through a grease interceptor. If food waste passes through a grease interceptor, it greatly reduces the efficiency of the interceptor. Food waste decomposition in a grease interceptor will dramatically increase the oxygen consumption. The food waste will also drop the pH, increase corrosion, and increase the hydrogen sulfide production. The only means of preventing this occurrence is to not have the food waste disposer discharge to the grease interceptor.
Using a solids interceptor before a grease interceptor is not a viable solution. The solids interceptor will continually fill up with food waste requiring maintenance. In a food handling establishment, this maintenance could be hourly.

A food waste disposer must discharge directly to the sanitary drainage system. This code change will result in such a requirement.

Cost Impact: Will not increase the cost of construction
This identifies a limitation on the discharge of food waste disposers through grease interceptor. By properly connecting the food waste disposer, the cost will be less because of material savings.

P233-15 : 1003.3.2-BALLANCO3807

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The committee agreed with the proponent's published reason statement.

Assembly Motion: Disapprove
Online Vote Results: Failed
Support: 46.1% (71) Oppose: 53.9% (83)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Max Weiss, representing Plumbing & Drainage Institute (max@weissresearch.net) requests Approve as Submitted.

Commenter's Reason: There is no single credible peer reviewed scientific, engeering study supporting piping food waste solids to a grease interceptor. There are many illustrating the benefit of food waste carbon sources at waste water treatment plants. Engineering studies on the effects of ground food wastes in the collection system cite no significant deleterious effects. [New York City; Hokaido, Japan].
Discharging solids to an interceptor violates the design purpose and certifications of a grease interceptor. There is no benefit to the collection system from requiring a commercial food waste grinder to discharge to a grease interceptor. Quite the opposite. Food wastes stored in the anaerobic environment of a grease interceptor impart more harm to the collection system than if no interceptor was present at all.

FOG content of food waste solids is about equal to human feces [20%]. However, because it is not in a free-floating state, adhesion / cohesion characteristics are not the same as free-floating FOG, for which interceptors are designed and flow with little difference than feces in the collection system.

Food solids decomposition quickly consumes entrained oxygen. When oxygen levels fall, anaerobic organisms flourish, greatly accelerating the production of hydrogen sulfide. Hydrogen sulfide, being a gas, rises to the headspace in the interceptor where aerobic organisms reduce the hydrogen sulfide to elemental sulfuric acid increasing both air water interface "halo" corrosion and subsurface corrosion.

Food wastes no not belong in a grease interceptor by any application of sound engineering.

Max Weiss, Executive Director

Plumbing & Drainage Instiute

Public Comment 2:

Proponent : Ken Loucks, Schier Products Company, representing Schier Products Company (ken.loucks@schierproducts.com) requests Disapprove.

Commenter's Reason: This proposal would mandate that the effluent from a food waste disposer be routed directly to the sanitary system. The proponent argues:
1. "It has been well established that food waste from a disposer must not discharge through a grease interceptor."

Rebuttal: This statement lacks technical support. Where has it been "well established"? If there are studies that support the argument they should have been submitted as a part of the proposal.

2. "If food waste passes through a grease interceptor, it greatly reduces the efficiency of the interceptor. Food waste decomposition in a grease interceptor will dramatically increase the oxygen consumption. The food waste will also drop the pH, increase corrosion, and increase the hydrogen sulfide production. The only means of preventing this occurrence is to not have the food waste disposer discharge to the grease interceptor."

Rebuttal: The current language in the plumbing code under section 1003.3.2 mandates that, "where food waste grinders connect to grease interceptor's, a solids interceptor shall separate the discharge before connecting to the grease interceptor." This undermines the argument made by the proponent. If the food waste is not allowed to build up in the interceptor then the interceptor would not experience the negative effects suggested by the proponent. also, the proponent is making a technical argument with regard to the effects of food waste buildup inside a grease interceptor without having provided any industry studies or reports that would support the argument. Furthermore, the proponent failed to address what the effects of discharging food waste from a food waste disposal unit would have on a wastewater collection system. Many jurisdictions around the country object to the suggestion that food waste from food waste disposal units do not have a deleterious effect on wastewater collection systems. This is a very important issue which should have been addressed as part of such a significant change to the plumbing code.

3. "Using a solids interceptor before a grease interceptor is not a viable solution. The solids interceptor will continually fill up with food waste requiring maintenance. In a food handling establishment, this maintenance could be hourly."

Rebuttal: A solids interceptor is a very acceptable solution to preventing a grease interceptor from filling up with food waste from a food waste disposal unit. Of course, a solids interceptor will have to be maintained as it fills up. How often it will have to be maintained would be in direct correlation to how large the solids interceptor is. The proponent fails to acknowledge that a food handling establishment may choose other options than "hourly" maintenance of the solids interceptor, which could also include installing a larger solids interceptor, redirecting food scraps to something other than the food waste disposal unit or not installing a food waste disposal unit in the first place.

The current language in the plumbing code is superior to the language in this proposal.

P233-15

P234-15

1003.3.2, 1003.3.3 (New)

Proposed Change as Submitted

Proponent : JEFFREY HUTCHER, cleanblu, representing Cleanblu (jhutcher@pacbell.net)

2015 International Plumbing Code

Revise as follows:

1003.3.2 Food waste disposers. Where food waste disposers connect to grease interceptors, a solids interceptor shall separate the discharge before connecting to the grease interceptor. Solids interceptors and grease interceptors shall be sized and rated for the discharge of the food waste disposers. ~~Emulsifiers, chemicals, enzymes and bacteria shall not discharge into the food waste disposer.~~

Add new text as follows:

1003.3.3 Additives to grease interceptors. Dispensing systems that dispense interceptor performance additives to grease interceptors shall not be installed except where such systems dispense microbes for the enhancement of aerobic bio remediation of grease and other organic material, or for inhibiting growth of pathogenic organisms by anaerobic methods. Such microbial dispensing systems shall be installed only where the grease interceptor manufacturer's instructions allow such systems and the systems conform to ASME A112.14.6. Systems that discharge emulsifiers, chemicals or enzymes to grease interceptors shall be prohibited.

Reason: Section 1003.3.2 is outdated and ignores the advances of new technology. To include bacteria in the prohibition is not only ignoring science, it is akin to prohibiting electricity as an energy solution. bioremediation is the sole mechanism of ALL waste water treatment plants and natures way to handle waste. Enzymes and microbes are not the same. Enzymes are dead strings of protein that disperse grease and is a common additive in dish soap. Microbes are lifeforms that eat and digest waste. Microbes can be blended (not altered) to feed on grease, sulfur, while inhibiting the growth of pathogens and other harmful organisms. Waste water treatment depends on microbes and and would simply cease to function without them ; So would the human body. Yeast are microbes too. It makes our bread rise, they give us beer, wine and cheese. They are not additives. It's impossible not to have microbes in any establishment. Using Microbes in point source pollution control is enchancing already naturally occuring bacteria and introducing them to their food source. Just like yeast, the by-products are Carbon Dioxide and water. Systems designed to use aerobic Microbes are now listed and meet ASME A112.4.6, using the rigorous EPA test protocol 1664. There is no reason to exclude them in point source pollution control. Exclusion of microbial treatment would be irresponsible, unnatural and dangerous to human and animal health.

Cost Impact: Will not increase the cost of construction
The microbe dispensing systems are optional and therefore, there is no additional cost of material or labor. The new section simply allows these optional systems to be installed as long as they comply with the requirements indicated by the section.

P234-15 : 1003.3.2-HUTCHER4455

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: This treatment protocol exists in the standard and is being used in the Califormia area.

Assembly Motion: Disapprove
Online Vote Results: Successful
Support: 61.59% (93) Oppose: 38.41% (58)
Assembly Action : Disapproved

Individual Consideration Agenda

Public Comment 1:

Proponent : Markus Lenger, representing CleanBlu Inc. (markuslenger@cleanblu.com) requests Approve as Submitted.

Commenter's Reason: Regarding P 234-15
Having served on the ASME A112.14.6 Standard Committee I can confirm that bioremediation was included in the standard. It can be found under Grease Disposal Units in the UPC and some products have already attained UPC listing for such devices.

Bioremediation of FOG is a proven science and is no longer considered novel. Montage Hotels & Resorts in Laguna Beach has successfully bioremediated their commercial kitchen effluent for the last 11-years, reducing operating costs, virtually eliminating pumping and eradicating the production of greenhouse gases.

In order to keep codes and standards current these newer technologies must be examined regularly and diligently.

Public Comment 2:

Proponent : Assembly Action

requests Disapprove.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Disapprove was successful by a vote of 61.59% (93) to 38.41% (58) by eligible members online during the period of May 14 - May 28, 2015.

Public Comment 3:

Proponent : Max Weiss, representing Plumbing & Drainage Institute (max@weissresearch.net) requests Disapprove.

Commenter's Reason: The use of additives (chemical or bio-chemical) in grease interceptors to effect benefit to the collection system or interceptor is not supported by sound scientific evidence. There is a plethora of studies concluding negative to no measurable effect.

Proponent cited, through a committee member for which a formal ethics complaint was registered, the standard ASME A112.14.6 [FOG Disposal Systems] in support of the use of additives in grease interceptors. Billy Smith, IPC Committee Member and I authored that standard; I serve on the ASME A112.14.6 FOG Disposal Systems Project Team at this time.

That citation was completely false in its content and out of context in its application. A112.14.6 FOG Disposal Systems refers to engineered systems which utilize, electrical, thermal, electrochemical, chemical, or bio-chemical means to reduce mass and volume of the triglyceride molecule that comprises FOG. Such systems are engineered reactors designed and certified for the stated purpose. In the case of bio-chemical application of the method, the device is a fixed-film reactor containing many thousands of square feet of substrate by which to support an engineered biofilm.

Virtually every jurisdiction in the U.S. and abroad have prohibitions against what this proposal presents. Under no circumstances does ASME A112.14.6 FOG Disposal Systems provide legitimization of additives in intercptors, or any other element of a standard drainage system.

Max Weiss, Executive Director

Plumbing & Drainage Institute

P234-15

P243-15
1102.6, Chapter 14

Proposed Change as Submitted

Proponent : Billy Smith, American Society of Plumbing Engineers Legislative Committee, representing American Society of Plumbing Engineers Legislative Committee (bsmith@aspe.org)

2015 International Plumbing Code

Revise as follows:

1102.6 Roof Drains. Roof drains shall conform to ASME A112.6.4 or ASME A112.3.1. Roof drains shall be tested and rated in accordance with ASPE/IAPMO Z1034.

Add new standard(s) as follows:
ASPE/IAPMO Z1034-2015 Test Method for Evaluating Roof Drain Performance

Reason: ASPE/IAPMO Z1034 is the new consensus standard for testing and rating roof drains for their flow rate. The current code requires the manufacturer to publish their flow rates. The flow rates are determined by testing to this standard.
The testing requirements in the standard are consistent with the results published in the ASPE Research Foundation Roof Drainage Research Report. The standard also allows flexibility in design to allow manufacturers to develop their own test rig for certifying their roof drains.

Cost Impact: Will increase the cost of construction
There are already cost associated with testing of roof drains. However, this being a new consensus standard, cost could increase.

Analysis: A review of the standard proposed for inclusion in the code, ASPE/IAPMO Z1034-2015, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P243-15 : 1102.6-SMITH5403

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal will severly restrict the selection of drains that can be used as only a few manufacturers have starting testing. ASME A112.6.4 is being revised and will include performance testing requirements so all manufacturers will have to comply as part of the compliance to this drain standard.

Assembly Action : None

Analysis. For staff analysis of the content of ASPE/IAPMO Z1034 with regard to the ICC criteria for referenced standards (Section 3.6 of CP #28), please visit: http://www.iccsafe.org/wp-content/uploads/2015-Proposed-Standards-Group-A-Final.pdf

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Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Submitted.

Commenter's Reason: This standard is a new standard published within the last year. As a result it takes time for manufacturers to have their products tested to this standard. However, this code will not be published until 2018. Then jurisdictions will have to adopt the code. Hence, the manufacturers have three years to have all their roof drains tested. This is adequate time since the testing only takes a matter of minutes, not days, weeks, or months.

In order for the roof drainage system to be sized according to the new methodology in the 2015 code, the information on the flow rate through a roof drain is necessary. This is already required in the code. The reference to the new standard will merely provide a consistent means of evaluating all manufacturers. That is the purpose of this standard.

This change must be adopted in order to properly size roof drainage systems.

P243-15

P245-15

1106.1, 1106.2, 1106.2.1 (New), Table 1106.2.1 (New), 1106.2.1.1 (New), 1106.2.1.2 (New), 1106.2.2 (New), 1106.2.2.1 (New)

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

1106.1 General. The size of the vertical conductors and leaders, building *storm drains*, building storm *sewers* and any horizontal branches of such drains or *sewers* shall be based on the 100-year hourly rainfall rate indicated in Figure 1106.1 or, on other rainfall rates determined from *approved* local weather data or, where an engineered roof drainage piping system is used, in accordance with the rainfall rates indicated in Section 1106.2.2.

1106.2 Size of storm ~~drain~~drainage piping. ~~Vertical and horizontal *storm drain*~~
Storm drainage piping shall be sized ~~based on the flow rate through the roof drain. The flow rate~~ in ~~*storm drain* piping shall not exceed that specified in Table 1106.2.~~accordance with Section 1106.2.1 or Section 1106.2.2.

Add new text as follows:

1106.2.1 Roof drainage. The stormwater drainage flow rate from a roof surface shall be in accordance with Table 1106.2.1 using a rainfall rate of a 60 minute duration storm of 100 year return period and the horizontal projected area of the roof. Stormwater drainage flow from a roof surface through secondary (emergency) roof drainage means shall not be considered when determining the flow rate for the primary storm drainage piping system.

TABLE 1106.2.1
ROOF DRAINAGE FLOW RATE

Roof Drainage Area (sq ft)	Drainage Flow Rate (gpm)					
	Based on Rainfall Rates (in/hr)					
	1	2	3	4	5	6
500	5	10	16	21	26	31
1000	10	21	31	42	52	62
1500	16	31	47	62	78	94
2000	21	42	62	83	104	125
2500	26	52	78	104	130	156
3000	31	62	94	125	156	187
3500	36	73	109	145	182	218
4000	42	83	125	166	208	249

4500	47	94	140	187	234	281
5000	52	104	156	208	260	312
5500	57	114	171	229	286	343
6000	62	125	187	249	312	374
6500	68	135	203	270	338	405
7000	73	145	218	291	364	436
7500	78	156	234	312	390	468
8000	83	166	249	332	416	499
9000	94	187	281	374	468	561
10000	104	208	312	416	519	623
11000	114	229	343	457	571	686
12000	125	249	374	499	623	748

1106.2.1.1 Roof drain. The roof drain shall have a manufacturer's published flow rate greater than or equal to the stormwater drainage flow rate determined in Section 1106.2.1. The flow rate used for sizing the roof drainage system shall be the roof drain manufacturer's published flow rate based at a head height of 4 inches (102 mm) of water ponding. Roof drainage piping shall be sized in accordance with Table 1106.2.

1106.2.1.2 Elevation of secondary roof drainage means . The bottom of the opening for secondary (emergency) roof drainage means shall be not less than 2 inches (51 mm) and not more than 3 inches (76 mm) higher than the lowest opening of the primary roof drain served by the secondary (emergency) roof drainage means.

1106.2.2 Engineered roof drain flow rate. Vertical and horizontal storm drain piping shall be sized based on the flow rate through the roof drain. The flow rate through a roof drain shall be based on the maximum anticipated height of water ponding above the roof drain that serves a roof area subjected to a rainfall rate of a 60-minute duration storm of 100-year return period and a 5-minute duration storm of 10-year return period. The flow rate through a roof drain shall be determined from the specific roof drain manufacturer's published flow rate at the maximum anticipated height of water ponding. The size of storm drainage piping from the roof drains to the termination of the storm drainage piping system shall be not less than the sizes indicated in Table 1106.2. The maximum anticipated height of water ponding above a roof drain and the stormwater drainage flow from a roof surface shall not include the effects of storm water drainage through any secondary (emergency) roof drainage means.

1106.2.2.1 Elevation of secondary roof drainage means. The bottom of the opening for secondary (emergency) roof drainage means shall be not less than 2 inches (51 mm) higher that the lowest opening of the primary roof drain served by the secondary (emergency) roof drainage means.

Reason: ASPE Research Foundation and IAPMO cosponsored research on the performance of roof drains in storm drainage system. The code change further updates the code requirements based on the recommendations in the ASPE RF report. The research report states the problem and the justification for this change. The research report is included with the submittal and can be downloaded at no cost at www.aspe.org.

The only difference between this change and the recommendation in the ASPE RF report is the first methodology for sizing a storm drainage system in proposed Section 1106.2.1. These requirements were developed to provide a cook-book method of sizing rather than conducting a proper engineering design. As a result, this sizing method takes a very conservative approach to sizing the

drainage piping. The drainage piping with be equal to or larger than the pipe size when using the engineered design.

The sizing of the storm drainage system still relies on the values published by the roof drain manufacturers. This data identifies the flow rate based on head height through the roof drain.

Another addition to the engineered sizing requirement is the evaluation of the roof drainage system for a microburst. While a 100 year storm may appear to be the most drastic storm for sizing a system, a microburst can overpower the storm drainage piping resulting in failure of the piping system. The microburst will typically not have a significant impact on the roof loading compared to a 100 year storm of 60 minute duration.

Bibliography: Storm Drainage System Research Project, Flow Through Roof Drains, Ballanco, 2012, Copyright American Society of Plumbing Engineers Research Foundation

Cost Impact: Will not increase the cost of construction
This change only adds an optional design method. While the new method will increase the cost of construction, it is not a mandated design. If the engineered design is selected, the cost remains neutral.

P245-15 : 1106.1-BALLANCO3687

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is a significant deviation from the flow rates that were put into the 2015 IPC. The committee is not sure why this new set of flow rates is necessary.

Assembly Action :

None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Plumbing Code

1106.2.1.2 Elevation of secondary roof drainage means . The bottom of the opening for secondary (emergency) roof drainage means shall be not less than 2 inches (51 mm) and not more than ~~3~~4 inches (~~76~~102 mm) higher than the lowest opening of the primary roof drain served by the secondary (emergency) roof drainage means.

Commenter's Reason: Unfortunately due to a conflict with one of my code changes in Track 1, I was unable to explain this code change to the Committee. While it appears confusing, it actually is a simplified means of sizing the roof drainage system without having to complete all the calculations. As a result, there are conservative values added into the sizing method. This is necessary to account for the exact values that are not calculated.

It must be noted that this additional sizing method is an optional means of sizing the roof drainage system. The current method in the 2015 Code can still be used. Most plumbing engineers would consider the current method the preferred method. However, for some simple buildings, it would be easier and faster to use this proposed method for sizing.

The alternate method of sizing was requested by many who have had difficulty in adjusting to the new sizing method. This follows the sizing methodology that was used in previous editions of the code, however, using the values determined in the ASPE RF study or roof drainage.

The modification was requested by manufacturers to account for their combined primary and secondary roof drains. This will not impact the sizing methodology since the flow rates for the secondary roof drain must still be posted.

P245-15

RP1-15
P2503.4

Proposed Change as Submitted

Proponent : Gary Kozan, CPD, representing Florida Association of Plumbing Heating Cooling Contractors (garyk@ridgewayplumbing.com)

2015 International Residential Code

Revise as follows:

P2503.4 Building sewer testing. The *building sewer* shall be tested by insertion of a test plug at the point of connection with the public sewer~~,~~ and completely filling the *building sewer* with water ~~and pressurizing~~ from the lowest to the ~~sewer to not less than 10-foot (3048 mm) head of water~~ highest point thereof. The test pressure shall not decrease during a period of not less than 15 minutes. The *building sewer* shall be watertight at all points.

A forced sewer test shall consist of pressurizing the piping to a pressure of not less than 5 psi (34.5 kPa) greater than the pump rating and maintaining such pressure for not less than 15 minutes. The forced sewer shall be water tight at all points.

Reason: Subjecting a gravity house sewer to a 10-foot head test is outdated and impractical. By the time the building sewer is connected, fixtures have usually been installed, so both ends have to be plugged off before testing in order to protect the building from flooding. Leaks on gravity house sewers are rare, considering that most today are constructed with plastic pipe and contain few fittings and joints. Simply filling the sewer with water is sufficient to identify any leaks. It should be noted that public sewer mains and branch laterals downstream of the building sewer are not water tested at all.
This testing method is identical to that found in the other model plumbing code (UPC), used in many states. Florida adopted similar testing requirements in 2000. It is time that the IPC recognizes this proven practice and bring the codes closer together.

Bibliography:
2012 Uniform Plumbing Code:

723.0 Building Sewer Test

723.1 General. Building sewers shall be tested by plugging the end of the building sewer at its points of connection with the public sewer or private sewage disposal system and ***completely filling the building sewer with water from the lowest to the highest point thereof***(emphasis added), or approved equivalent low-pressure air test. Plastic DWV piping systems shall not be tested by the air test method. The building sewer shall be watertight.

2010 Florida Building Code - Plumbing

312.6 Gravity sewer test. Gravity sewer tests shall consist of plugging the end of the building sewer with water at the point of connection with the public sewer, ***completely filling the building sewer with water from the lowest to the highest point thereof***(emphasis added), and maintaining such pressure for 15 minutes. The building sewer shall be watertight at all points.

2010 Florida Building Code - Residential:

2503.4 Gravity sewer test. Gravity sewer tests shall consist of plugging the end of the building sewer with water at the point of connection with the public sewer, ***completely filling the building sewer with water from the lowest to the highest point thereof***(emphasis added), and maintaining such pressure for 15 minutes. The building sewer shall be watertight at all points.

Cost Impact: Will not increase the cost of construction
Reducing the head test for gravity sewers will shorten the length of the fill stack, and eliminate the need for additional test fittings, test balls, and labor to plug off the upper end of the sewer. This should translate to a modest reduction in cost of approx. $20 - $40 per sewer test.

RP1-15 : P2503.4-KOZAN3454

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The phrase "highest point thereof" seems ambiguous. The committee would like to see consistency with the 5 feet of water head test for building drains.

Assembly Motion: As Submitted
Online Vote Results: Failed
Support: 21.77% (32) Oppose: 78.23% (115)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Gary Kozan, representing FAPHCC (garyk@ridgewayplumbing.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

P2503.4 Building sewer testing. The *building sewer* shall be tested by insertion of a test plug at the point of connection with the public sewer ~~and completely~~ , filling the *building sewer* with water ~~from~~ and pressurizing the ~~lowest~~ sewer to ~~the highest point thereof~~ not less than 5-foot (1524 mm) head of water. The test pressure shall not decrease during a period of not less than 15 minutes. The *building sewer* shall be watertight at all points.

A forced sewer test shall consist of pressurizing the piping to a pressure of not less than 5 psi (34.5 kPa) greater than the pump rating and maintaining such pressure for not less than 15 minutes. The forced sewer shall be water tight at all points.

Commenter's Reason: The disapproval of RP 1-15 means the code reverts back to a 10-foot head test for exterior building sewers, while requiring only a 5-foot head

test for interior DWV testing. By approving this modification, the testing of interior and exterior DWV piping will be in sync once again.

RP1-15

RP2-15
P2503.5.1

Proposed Change as Submitted

Proponent : Janine Snyder, City of Thornton, Colorado, representing Colorado Association of Plumbing & Mechanical Officials (CAPMO) (Janine.Snyder@cityofthornton.net)

2015 International Residential Code

Revise as follows:

P2503.5.1 Rough plumbing. DWV systems shall be tested on completion of the rough piping installation by water or, for piping systems other than plastic, by air, without evidence of leakage. Either test shall be applied to the drainage system in its entirety or in sections after rough-in piping has been installed, as follows:

1. Water test. Each section shall be filled with water to a point not less than ~~5~~ 10 feet (~~1524~~ 3048 mm) above the highest fitting connection in that section, or to the highest point in the completed system. Water shall be held in the section under test for a period of 15 minutes. The system shall prove leak free by visual inspection.
2. Air test. The portion under test shall be maintained at a gauge pressure of 5 pounds per square inch (psi) (34 kPa) or 10 inches of mercury column (34 kPa). This pressure shall be held without introduction of additional air for a period of 15 minutes.

Reason: Historically the codes required a 10 foot head on DWV systems. With the change in the 2015 to only 5 feet head the DWV system can have leaks that are undetectable therefore placing the property owner at risk for damage over the life of the structure. The 10 foot head not only elliminates that risk it ensures that the system is in fact water tight which is the purpose of the test in the first place.

Cost Impact: Will increase the cost of construction
The 10 foot head requirement has been in place and is the standard for testing. The cost of replacing or repairing portions of the DWV system that have leaks that have gone undetected due to the relaxed testing pressures overrules the cost of the additional 5 foot head of water.

RP2-15 : P2503.5.1-SNYDER4419

Public Hearing Results

Committee Action: Disapproved

Committee Reason: A 5 foot of water head test is safer to perform and many contractors have never had a problem when using this test pressure. There is no need to change the test pressure back to 10 feet of water head.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Colorado Association of Plumbing Mechanical Officials, CAPMO (Janine.Snyder@cityofthornton.net) requests Approve as Submitted.

Commenter's Reason: Historically the codes required a 10 foot head on DWV systems. With the change in the 2015 to only 5 feet head the DWV system can have leaks that are undetectable therefore placing the property owner at risk for damage over the life of the structure. The 10 foot head not only eliminates that risk it ensures that the system is in fact watertight which is the purpose of the test in the first place. The plastic pipe manufacturer's don't designate residential pipe vs. commercial pipe so why should the test be different if the pipe is not. Furthermore, the change to the 2015 IPC and 2018 IPC to go to a 5 foot head test was disapproved by the committee and the subsequent assembly action also failed further reiterating the validity and necessity of the 10 foot head test requirement.

RP2-15

RP6-15

P2802 (New), P2802.1 (New), P2802.2 (New), Table P2802.2 (New), P2802.3 (New)

Proposed Change as Submitted

Proponent : Ed Osann, representing Natural Resources Defense Council (eosann@nrdc.org)

2015 International Residential Code

Add new text as follows:

SECTION P2802
RADIAL DISTANCE TO CERTAIN PLUMBING FIXTURES

P2802.1 Scope. The distance limitation in Section P2802.2 shall apply to the following plumbing fixtures:

1. lavatories.
2. kitchen sinks.
3. showers.
4. tub-shower combinations.

Exception: Plumbing fixtures connected to a hot water recirculation system.

P2802.2 Maximum distance to certain plumbing fixtures For hot water distribution systems serving individual dwelling units, the maximum radial distance in plan view between the location of a water heater and a plumbing fixture receiving hot water from it shall be no more than the length shown in Table P2802.2. For purposes of this determination, the location of a water heater shall be translated vertically to each floor on which a fixture served by such water heater is located.

TABLE P2802.2
MAXIMUM RADIAL DISTANCE BETWEEN A WATER HEATER AND CERTAIN PLUMBING FIXTURES

Dwelling Unit Floor Area (ft^2)	Maximum Plan View distance (ft)	
	Two or More Story Structures	One-Story Structures
≤1000	20 ft.	30 ft.
>1000 to ≤1600	30 ft.	40 ft.
>1600 to ≤2200	40 ft.	50 ft.
>2200 to ≤2800	45 ft.	55.ft.
>2800	50 ft.	65 ft.

P2802.3 Points of Measurement Radial distance shall be measured in plan view betwee the center point of the water heater and the hot water outlet serving a plumbing fixture indicated in Section P2802.1.

Reason: Cold or tepid water in the initial draw from a hot water outlet is often unusable for its intended purpose and is frequently purged,

resulting in a waste of water, energy, and time for residents. Pipe insulation significantly reduces heat loss and helps to ensure that hot water gets to users sooner. However, a complementary strategy is to reduce the volume of water contained in the hot water distribution system subject to cool-down. This proposal seeks to reduce entrained hot water volume by setting generous but clear limits on the distance between a hot water heater and the furthest bathroom or kitchen fixture it serves.
Providing greater proximity between the hot water source and the fixtures using hot water will reduce the need for purging. This proposal is similar in intent and effect to Section 607.2 of the International Plumbing Code, which sets a maximum developed length of 50 feet for hot water supply piping between a heat source and any hot water fixture. While not a limitation on pipe length or internal volume *per se*, this proposal will have similar results and has the avantage of requiring no special drawings nor any measurements or calculations at the job site. Rather, its simple provisions can be easily applied during project design and confirmed at plan check, and its graduated distance limits meet the need for a flexible approach that respects the diversity of types and sizes of single-family homes covered by the IRC.

Plans for most two-story production homes should comply with this provision with little or no adjustment. Most home designs where the principal length-to-width ratio of the building footprint is 2 to 1 or less should face few compliance isues. The concept may be more challenging for single-story homes, and for that reason an additinal distance allowance is provided for single-story buildings. Plans for homes with long and narrow configuration may require adjustment, largely to avoid positioning the hot water heater and its furthest fixture outlet at diagonally opposite corners of the building. Avoiding such inherently inefficient designs is the primary intent of this proposal.

The specific limitations in this proposal have their origin in a review of data collected from a diverse group of 55 single-family homes under construction in California in 2010-11. A plot of house floor area and maximum length of pipe between the hot water heater and the furthest hot water fixture was developed. Based upon these plotted data, in 2011 the California Utilities Statewide Codes and Standards team devloped a draft proposal setting a grauated limit on the maximum length of hot water pipe between a water heater and the furthest fixture. The proposal was estimated to save over 2500 gallons of water and over 24 therms of natural gas annually when applied to prototype homes. However, these initial pipe length criteria would have been met by just 10 out of the 55 homes surveyed. Subsequent workshops raised concerns about the challenges of field verification of pipe length subject to the limit. As a result, the concept was modified to measure radial distance in plan view, in lieu of field verification of pipe length. In its second iteration, limits were expressed as radial distances instead of pipe length, but the proposal was intended to be equally stringent. In this proposal for the IRC 2018 model code, these stringent distant limits have been increased by 50%; we estimate that over 75% of the surveyed homes in the 2010-11 data set would meet these proposed limits.

Plans not meeting the radial length limitation can come into compliance using several strategies, including fixture repositioning or hot water repositioning. The latter can often be accomplished by repositioning the proposed water heater location from an exterior garage wall to an interior garage wall; moving a basement water heater from a corner toward a more central location; or rearranging fixture locations in a bathroom to move hot water outlets closer to the water heater. Installation of a second water heater is also an option, as is a recirculation loop. Design flexibility is maintained, and architects and builders can easily identify any compliance issues at an early stage.

The IRC, as a minimum code, has a crucial role to play in curbing excessive waste of water and energy in future years by means of improved design and construction of new homes. An inefficient hot water distribution system is likely to remain in place for the life of the building, leaving owners without access to options that would have only been practical at the time of construction.

Reducing the waste of energy and water is an integral part of the stated purpose of the IRC:

> R101.3 Intent.
>
> The purpose of this code is to establish minimum requirements to safeguard the public safety, health and general welfare through affodability, structural strength, means of egress facilities, stability, sanitation, light and ventilation, energy conservation and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations.

This proposal, by reducing demands on energy and water systems in new homes, clarly advances the "public safety, health and general welfare" through cost-effective designs and energy conservation. Water-saving building designs reduce unnecessary water use, helping to ensure that water supplies are maintained at safe and reliable levels, protecting human health and firefighting capability as well as environmental resources. Energy- and water-saving designs, such as those meeting the criteria of this proposal, also enhance housing affordability and general welfare through reduced energy, water and sewer bills of building owners and occupants.

Additional Technical Background

A 2009 paper by Robert Hendron of the National Renewable Energy Laboratory and others quantified the waste of hot water in initial draws waiting for water to reach 105ºF. Modeling the plumbing typical of a 3-bedroom, 2-bath, single-story home with a hot water distrubutiuon simulation tool found that an estimated 12% of all hot water used on an annual basis is wasted. When viewed by fixture, the results are as follows:

- Showers -- over 10% wastage.
- Kitchen sinks -- 18% wastage.
- Lavatories -- over 30% wastage.

Purging at these fixtures is responsible for 95% of the estimated total of nearly 3,000 gallons of hot water wastage annually. Of course, many new homes are built with more hot water outlets than this model's base case and with hot water distribution systems that are far less efficient. Nevertheless, this proposal will direct the attention of designers and code officials to the proximity between water heaters and those fixtures that are responsible for the great majority of hot water waste.

Bibliography: Hendron, Robert, et al, "Potential for Energy Savings through Residential Hot Water Distribution System Improvements", Proceedings of the 3rd International Conference on Energy Sustainability, San Francisco, CA July 2009.
Single Family Water Heating Distribution System Improvements, Codes and Standards Enhancement Initiative (CASE), California Utilities Statewide Codes and Standards Team, draft May 2011.

Single Family Water Heating Distribution System Improvements, Codes and Standards Enhancement Initiative (CASE), California Utilities

Statewide Codes and Standards Team, final September 2011.

Cost Impact: Will not increase the cost of construction
This proposal is a design requirement that can be met without increasing the cost of construction. Plans that may be initially out of conformance can most commonly be adjusted with strategies that need not carry a cost penalty, such as repositioning the proposed hot water heater location from an exterior garage wall to an interior garage wall, or by rearranging fixture locations in a bathroom to move hot water outlets closer to the water heater. Such changes typically result in shorter lengths of both cold and hot water piping, thereby reducing costs. The CASE report referenced in the bibliography evaluated the cost-effectiveness of radial distance limits that were significantly more stringent than proposed here, and found them to be cost-effective in all cases. (See final report, pp. 20-21.) The report's estimate even assumed an initial cost of $390 for additional lengths of natural gas piping and water heater vent piping, even though repositioning a water heater from an outer garage wall to an inner garage wall need not increase gas service line length. Cost savings averageing $73 from reduced length of PEX hot water piping were estimated. Natural gas savings of 24 therms per year more than ofset these costs on a life-cycle basis. What's more, no savings were calculated or credited for reduced water and sewer charges over the life of the building, which would further improve the cost-effctiveness of this measure.

RP6-15 : P2802 (New)-OSANN5261

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The distances chosen are arbitrary and dose not take into account the volume of the piping between the water heater and the point of delivery. These requirements might cause multiple water heaters to need to be installed. There are hot water circulation systems available that can be used to reduce the time to obtain hot water and to reduce water waste when waiting for hot water to arrive.

Assembly Action **:** None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Ed Osann, Natural Resources Defense Council, representing Natural Resources Defense Council (eosann@nrdc.org) requests Approve as Submitted.**

Commenter's Reason: This proposal offers an easy-to-use and easy-to-verify design guide to help prevent excessive waiting time for hot water to arrive at sinks and showers. Compliance is based upon the straight-line distance between a hot water heater and a hot water fixture outlet, a distance easily confirmed at plan check. Distance limits are graduated based on the size of the house. There is no measurement of pipe volume or pipe length required.
(The straight-line distance is referred to in the proposal as "radial distance" because an equidistant limit extending from the hot water heater takes the form of an arc or circle overlaid on a house plan.)

As shown in the accompanying illustrations, the house plans of most production homes will comfortably meet the distance limits in this proposal. The proposal does not seek to optimize all home designs to produce the shortest possible wait times for hot water. Rather, as is appropriate for a base code, the proposal is intended to flag those plans with the most inherently inefficient positioning of the water heater and the fixtures it serves. House plans with long and narrow configurations and plans for very large homes may require some adjustments, most likely the repositioning of either the hot water heater or the furthest fixture outlet. A recirculation loop is another compliance option, as the distance limits do not apply to any fixture connected to a recirculation system.

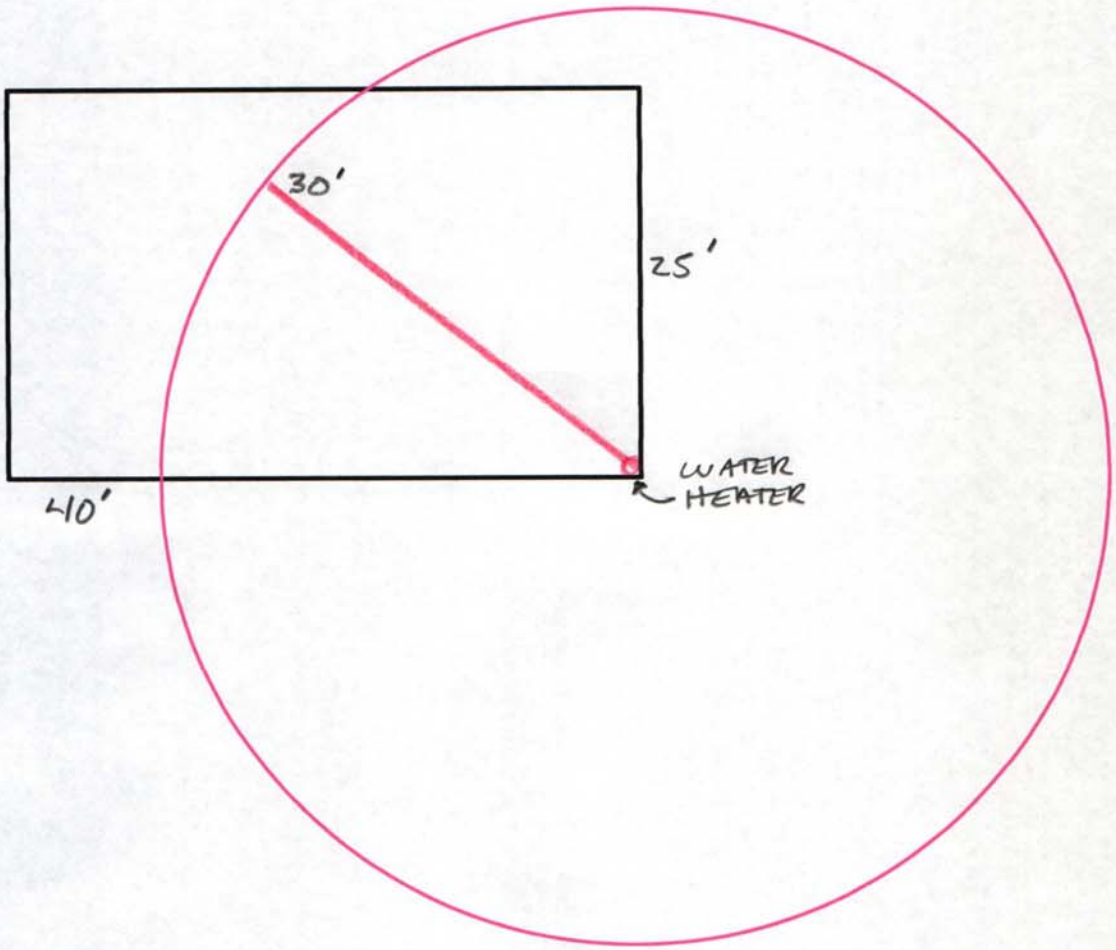
Long waiting time for hot water is a well-known source of customer complaint. Excessive distances between water heaters and hot water outlets are inherently wasteful of water, energy, and time, but are easily avoided with proper attention to fixture and water heater placement.

Illustrative Examples

The following illustrations offer a demonstration of the simplicity of applying this proposal in practice. **Figure 1** is the most basic schematic of a very small single-story home of 1,000 square feet. As per the values in the proposed table, the straight-line distance allowed between the water heater and the outlet of a hot water fixture is 30 feet. In this example, the water heater is positioned in the corner of this house plan. If all hot water fixtures are within the 30' arc, the plan is compliant. However, if the outlet of a hot water fixture listed in the first paragraph of the proposal is located outside the 30' arc, the plan does not comply.

Figure 1.

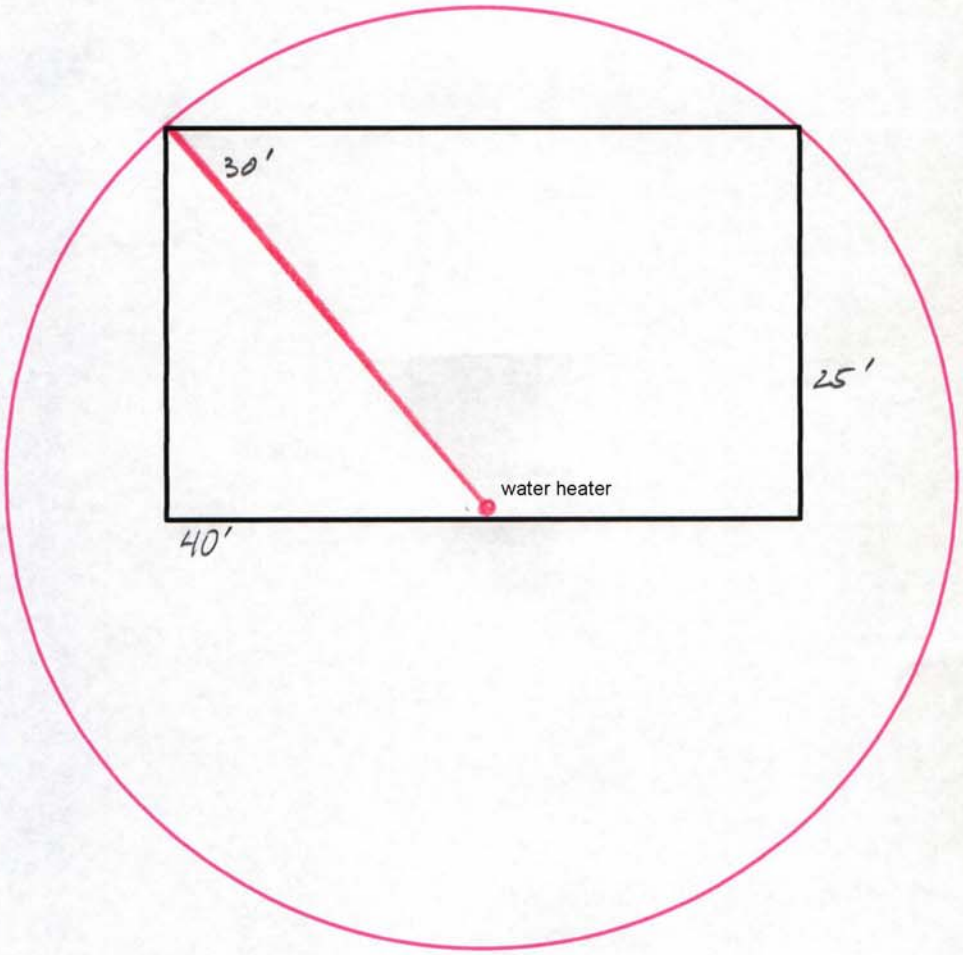
1000 S.F.
1 STORY
30 FT RADIAL ALLOWANCE
PLUMBING FIXTURES INSIDE CIRCLE COMPLY



A second illustration of the same sized small home shows the effect of moving the hot water heater to a more central location. In **Figure 2**, the position of the hot water heater is at a more central point along an exterior wall. This entire home falls within the 30' arc, and the plan would be compliant for all possible locations of the hot water outlets within this home.

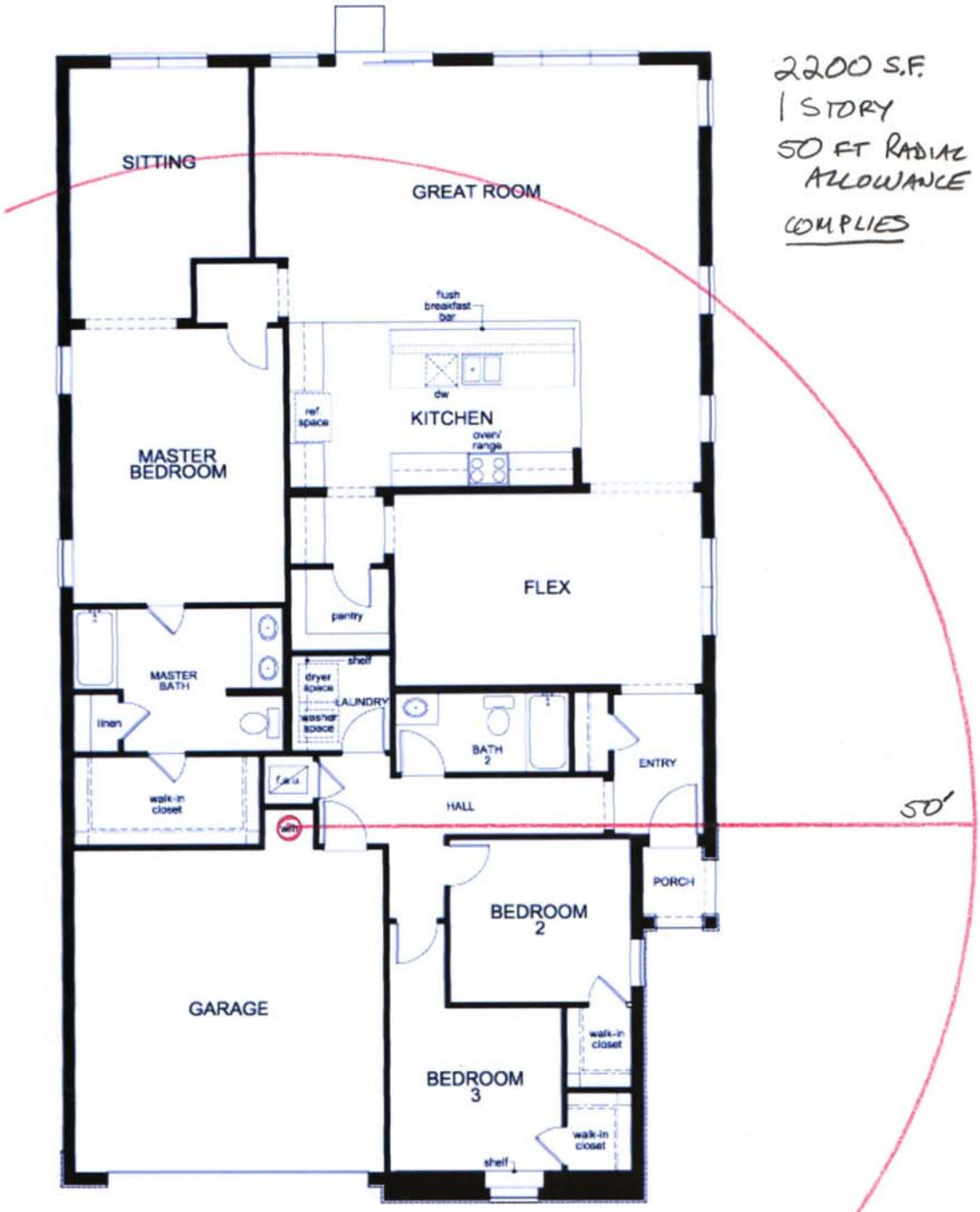
Figure 2.

1000 S.F.
1 STORY
30 FT RADIAL ALLOWANCE
ALL PLUMBING FIXTURES IN DWELLING COMPLY



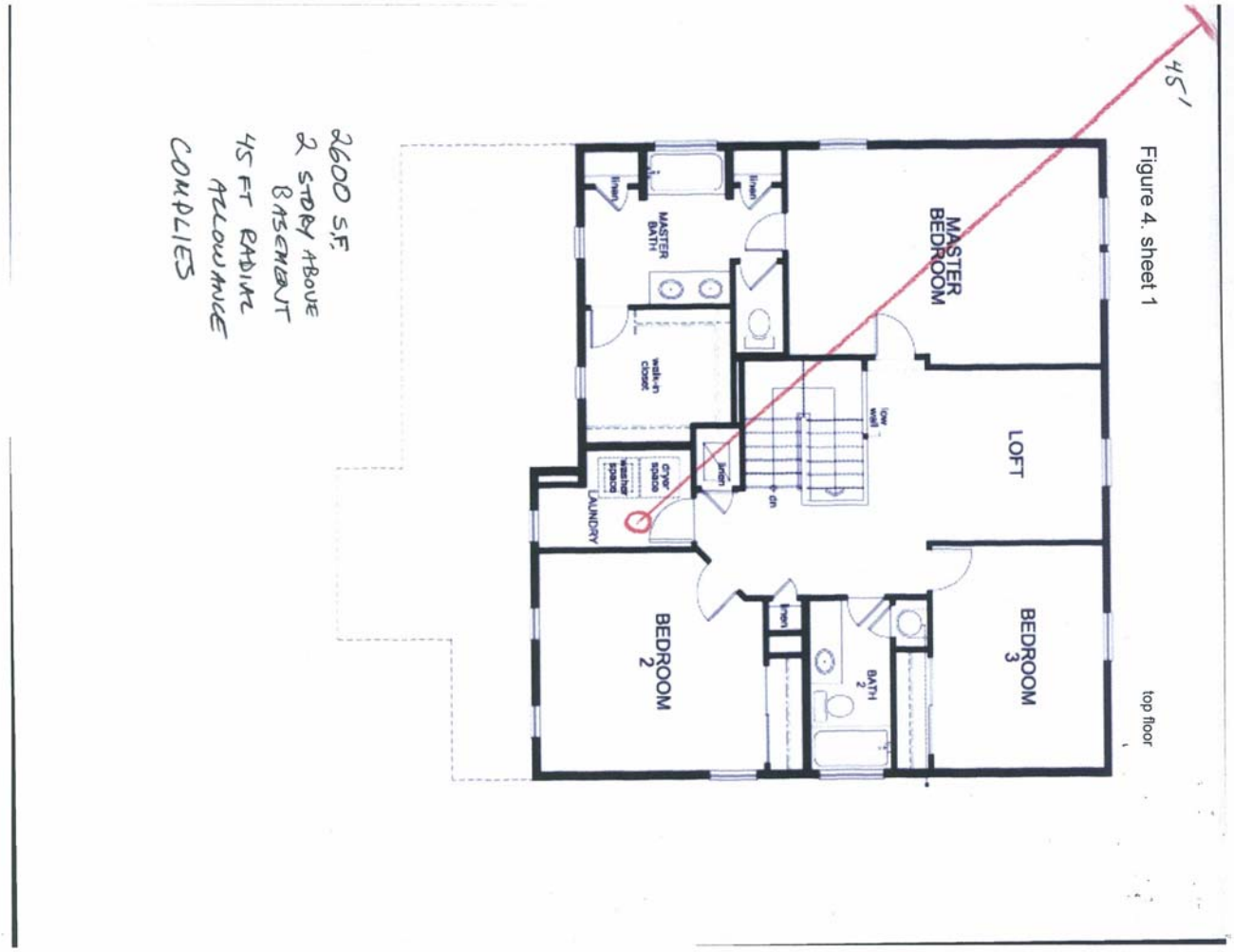
A third illustration shows the plan for a somewhat larger one-story home, with 2,200 square feet. In **Figure 3**, as per the values in the proposed table, the straight-line distance allowed between the water heater and the outlet of a hot water fixture listed in the first paragraph of the proposal is 50 feet. Here, all hot water outlets fall within the 50' arc, so the plan complies. Note, however, that *if* the master bath had been placed in the location of the sitting room, it is possible that one or more hot water outlets would have fallen outside the 50' arc, and such a plan would not comply. But some adjustment of fixture locations within the master bath by the designer would likely have brought the design into compliance.

Figure 3.



A fourth illustration demonstrates the application of the proposal to multi-story homes, in this case, a home of 2,600 square feet and a maximum straight-line distance allowance of 45 feet. In **Figure 4**, the hot water heater is located in the basement, as shown on Figure 4, Sheet 3. Section P2802.2 of the proposal specifies that the location of the hot water heater "shall be translated vertically to each floor on which a fixture served by such water heater is located." In other words, the maximum straight-line distance is applied separately on each floor, measured from a point on each floor that is directly above the location of the hot water heater in the basement. In Figure 4, one can see that the point of measurement on both the first and second floors is the same position in the plane of these floors as the position of the hot water in the plane of the basement. In this example, this relatively compact house design easily complies with the 45' maximum distance for

a home of its square footage.



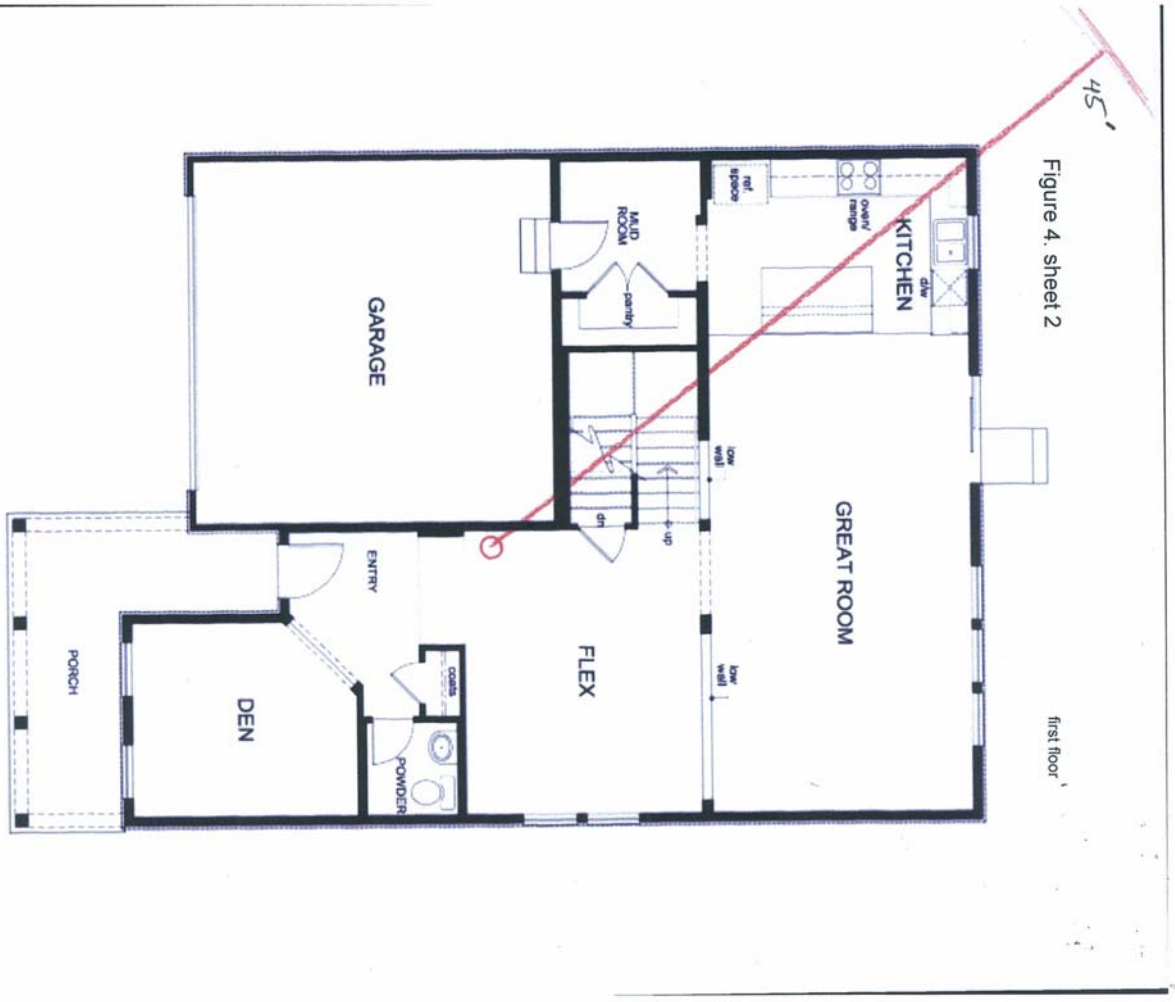
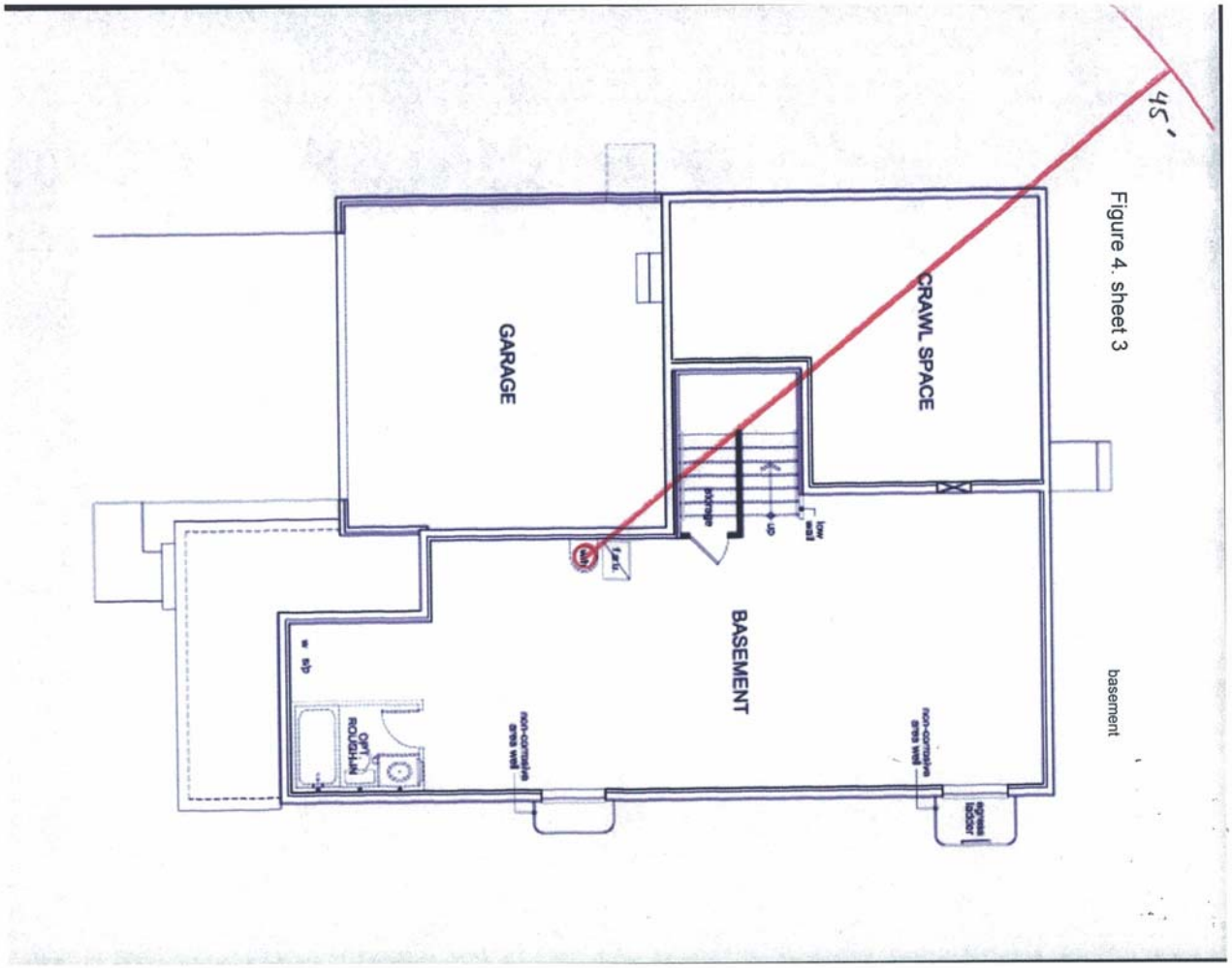
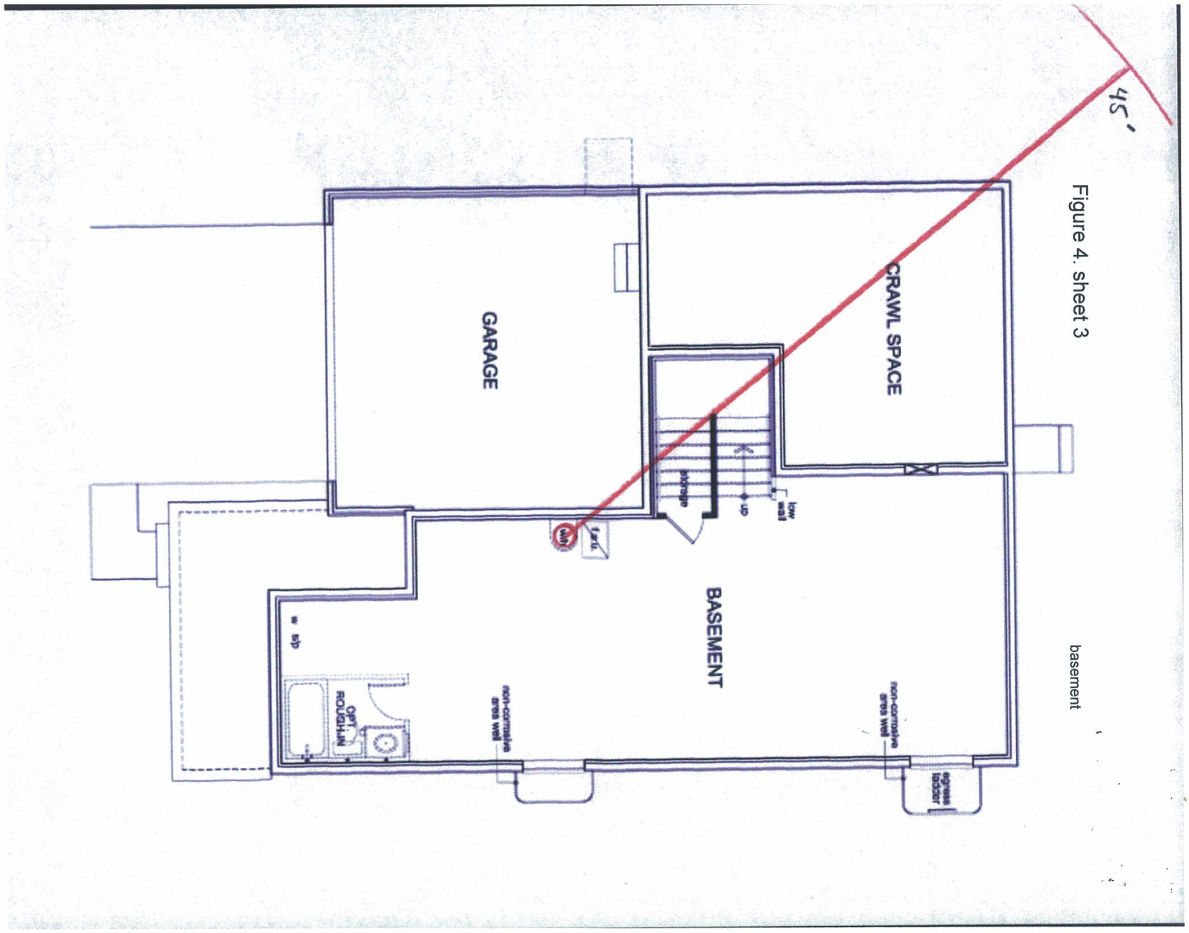


Figure 4. sheet 2

first floor


45'
Figure 4. sheet 3
basement
CRAWL SPACE
GARAGE
BASEMENT
low wall
up
footage
1 sq. ft.
non-combustible area wall
non-combustible area wall
opt. ROUGH-IN
w sp

RP6-15


45'
Figure 4, sheet 3
basement
CRAWL SPACE
GARAGE
BASEMENT
low wall
up
storage
Gas
non-combustible area wall
non-combustible area wall
sump door
sump
GAS ROUGH-IN

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P3201.1, P3201.2, P3201.2.1.1, P3201.2.1.2, P3201.2.1.3, P3201.2.1.4, P3201.3, P3201.5, P3201.6, Chapter 44

Proposed Change as Submitted

Proponent : Ronald George, Plumb-Tech Design & Consulting LLC on belhalf of Hepworth Bldg Prods (A Trading Div. of Wavin UK Holdings) Ltd., representing Hepworth Building Products (A trading Division of Wavin UK Holdings) Ltd./HepVO

2015 International Residential Code

Revise as follows:

P3201.1 Design of traps. Traps shall be of standard design, shall have smooth uniform internal waterways, shall be self-cleaning and shall not have interior partitions except where integral with the fixture. Traps shall be constructed of lead, cast iron, copper or copper alloy or *approved* plastic. Copper or copper alloy traps shall be not less than No. 20 gage (0.8 mm) thickness. Solid connections, slip joints and couplings shall be permitted to be used on the trap inlet, trap outlet, or within the trap seal. Slip joints shall be accessible.

> **Exception:** Sanitary waste valve devices complying with ASME A112.18.8 shall be an alternative to the traps required by this section where such devices are installed in accordance with the manufacturer's instructions.

P3201.2 Trap seals. Each fixture trap shall have a liquid seal of not less than 2 inches (51 mm) and not more than 4 inches (102 mm).

> **Exception:** Sanitary waste valve devices complying with ASME A112.18.8 shall not be required to have a liquid seal.

P3201.2.1.1 Potable water-supplied trap seal primer valve. A potable water-supplied trap seal primer valve shall supply water to the trap. Water-supplied trap seal primer valves shall conform to ASSE 1018. The devices shall be installed in accordance with the manufacturer's instructions. The discharge pipe from the trap seal primer valve shall connect to the trap above the trap seal on the inlet side of the trap.

P3201.2.1.2 Reclaimed or gray-water-supplied trap seal primer valve. A reclaimed or gray-water-supplied trap seal primer valve shall supply water to the trap. Water-supplied trap seal primer valves shall conform to ASSE 1018. The devices shall be installed in accordance with the manufacturer's instructions. The quality of reclaimed or gray water supplied to trap seal primer valves shall be in accordance with the requirements of the manufacturer of the trap seal primer valve. The discharge pipe from the trap seal primer valve shall connect to the trap above the trap seal on the inlet side of the trap.

P3201.2.1.3 Waste-water-supplied trap primer device. A waste-water-supplied trap primer device shall supply water to the trap. Waste-

water-supplied trap primer devices shall conform to ASSE 1044. The devices shall be installed in accordance with the manufacturer's instructions. The discharge pipe from the trap seal primer device shall connect to the trap above the trap seal on the inlet side of the trap.

P3201.2.1.4 Barrier-type trap seal protection device. A barrier-type trap seal protection device ~~shall protect the floor drain trap seal from evaporation. Barrier type floor drain trap seal protection devices~~ shall conform to ASSE 1072. The devices shall be installed in accordance with the manufacturer's instructions.

P3201.3 Trap setting and protection. Traps shall be set level with respect to their water seals and shall be protected from freezing. Trap seals shall be protected from siphonage, aspiration or back pressure by an *approved* system of venting (see Section P3101). The devices shall be installed in accordance with the manufacturer's instructions.

P3201.5 Prohibited trap designs. The following types of traps are prohibited:

1. Bell traps.
2. Separate fixture traps with interior partitions, except those lavatory traps made of plastic, stainless steel or other corrosion-resistant material.
3. "S" traps.
4. Drum traps.
5. Trap designs with moving parts.

Exception: Sanitary waste valve devices complying with ASME A112.18.8 shall be permitted provided that the devices are installed in accordance with the manufacturer's instructions.

P3201.6 Number of fixtures per trap. Each plumbing fixture shall be separately trapped by a water seal trap. The vertical distance from the fixture outlet to the trap weir shall not exceed 24 inches (610 mm) and the horizontal distance shall not exceed 30 inches (762 mm) measured from the center line of the fixture outlet to the centerline of the inlet of the trap. The height of a clothes washer standpipe above a trap shall conform to Section P2706.1.2. Fixtures shall not be double trapped.

Exceptions:

1. Fixtures that have integral traps.
2. A single trap shall be permitted to serve two or three like fixtures limited to kitchen sinks, laundry tubs and lavatories. Such fixtures shall be adjacent to each other and located in the same room with a continuous waste arrangement. The trap shall be installed at the center fixture where three fixtures are installed. Common trapped fixture outlets shall be not more than 30 inches (762 mm) apart.
3. Connection of a laundry tray waste line into a standpipe for the automatic clothes-washer drain shall be permitted in accordance with Section P2706.1.2.1.

4. A water seal trap shall not be required where a sanitary waste valve device complying with ASME A112.18.8 is installed in accordance with the manufacturer's instructions.

Add new standard(s) as follows:

ASME A112.18.8 -2009 (Reaffirmed 2014) In-Line Sanitary Waste Valves for Plumbing Drainage Systems

Reason: This code change proposal is for a new plumbing product that outperforms a p-trap, but it is not a p-trap. A p-trap is based on trapping water in the drain to provide a seal between the interior of a building and the sewer gasses and odors in the public sewer. This product is called an In-Line Sanitary Waste valve. It is designed to prevent sewer odors from the building drain and public sewers from entering the building but it does not "Trap water" it uses a flexible membrane and therefore it needs to be identified separately with an exception. In-line sanitary waste valves perform better than a P-trap. P-traps will often plug when solids are put into the drain, where in-line waste valve easily pass solids. P-traps often crack and leak when exposed to freezing temperatures and P-traps will dry up an allow sewer odors to escape into the building when the fixture has not been used for a period of time. (A couple of weeks) In-line sanitary waste valves perform very well in freezing conditions and they still prevent sewer gasses from entering a building when the fixture has not been used for an extended period. Long periods of non-use is common for many seasonal type hotel, school and state park types of buildings. Sanitary waste valves have been used extensively in many other parts of the world very successfully. (Europe, South Africa, and Asia) (See attached testimonial letters) This proposal is seeking to allow the use of in-line sanitary waste valves that conform to the requirements of the attached standard to be used in lieu of p-traps, but not replace p-traps. These devices cost more than a p-trap, so they will not take over the market. They are intended to only be used on sinks, lavatories, and bathtubs where freezing conditions may exist (in overhangs) or in seasonal buildings like cabins, vacation homes or large hotels where some wings or building may not be used for long periods, They may also be used in State Park facilities, National Park Facilities, seasonal resorts, schools, and stadiums during off-seasons or in buildings where traps can freeze or dry up. This option is currently not available and this code change is intended to give consumers a choice for a better product if they choose to purchase it.

The manufacturer went to the American Society of Mechanical Engineers to develop a Standard for this product. The standard is ASME A112.18.8, the standard was titled: "In-Line Sanitary Waste Valves for Plumbing Drainage Systems". This standard includes a "Scope" that states these devices are intended "for use as an alternate to tubular p-traps" (1-1/4 inch and 1-1/2 inch at sinks, lavatories and bathtubs only) The standard also covers the material and performance requirements for the product. It also states that these devices are not intended for use with water closets and urinals.

The Standard includes Material Requirements for the device to comply with the Seal material requirements in ASTM F409 Standard Specification for Thermoplastic Accessible and Replaceable Plastic Tube and Tubular Fittings. It also addresses the Seal material to comply with or exceed the following material requirements from ASTM D2000: M3BA507, A14, B13, C12 and F17 or M2BG714, B14, EO14, and EO34. The ASTM D2000 standard is an industry standard for rubber and polymer products. The material requirements have been confirmed with a 3rd party laboratory test report. (Attached)

The Standard also has material requirements for the bladder/checking member material to comply with or exceed the following material requirements from ASTM D2000: M3FC607, EA14, EO16 and G11. The bladder/checking member material requirements have been confirmed with a 3rd party laboratory test report. (Attached)

Other material requirements address valve inlet dimensions, valve outlet dimensions and threaded connections.

The Standard includes performance testing requirements which includes the following tests: 1. Waterway Flow test; 2. One-Way Sealing Performance Test; 3. Airway Flow Rate; 4. Recovery from an Excess Back Pressure Test; 5. Leak Tightness Test; 6. Thermal Cycling; 7. Resistance to Household Substances: rice, diced vegetables, resistance to cleaning product, soaps, solids, kiln dried sand, and the lard test from the grease interceptor and trap seal protection device standards; 9. Resistance to Chemicals and Solvents; 10. Drop Test; and 11. Life Cycle Operation Test.

The Standard also has requirements for marking, Identification and installation Instructions.

In-Line sanitary waste valves are an innovative, hygienic, Self Sealing, Waste Valve.

In-Line sanitary waste valves can be installed vertically or horizontally (with an adaptor) and are available in 1-1/4 inch (32mm) and 1-1/2 inch (40mm) sizes.

The Recreational Vehicle industry in North America has embraced this technology because it out performs P-traps in freezing conditions and when there are periods of non-use. Another advantagee over p-traps is it prevents sewage from backing up into bathtubs when there is movement and it could help prevent backflow of sewage.

Bibliography: Link to website for additional information:
http://overseas.wavin.com/overseas/HepVo_waste_valve.html

Cost Impact: Will not increase the cost of construction
There will be no addditional cost associated with this code change, because it is not mandating the use of products meeting this Standard, it is simply listing it as an alternate to a p-trap as an alternate method for a better performing installation. It is not a mandatory code change, If someone chooses to install an in-line Sanitary Waste Valve, Then it must conform to the industry Standard.

Analysis: A review of the standard proposed for inclusion in the code, ASME A112.18.8 -2009 (Reaffirmed 2014), with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

RP19-15 : P3201-GEORGE5005

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The committee agreed with the proponent's reason statement in that this device is a viable option to use.

Assembly Motion: Disapprove
Online Vote Results: Successful
Support: 62.5% (95) Oppose: 37.5% (57)
Assembly Action : Disapproved

Analysis. For staff analysis of the content of ASME A112.18.8-2009 (R2014) with regard to the ICC criteria for referenced standards (Section 3.6 of CP #28), please visit: http://www.iccsafe.org/wp-content/uploads/2015-Proposed-Standards-Group-A-Final.pdf

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Individual Consideration Agenda

Public Comment 1:

Proponent : Ronald George, Plumb-Tech Design and Consulting LLC, representing Hepworth Building Products (A trading Division of Wavin UK Holdings) Ltd./HepVO requests Approve as Submitted.

Commenter's Reason: This proposal was accepted by the Residential Plumbing Code committee because they obviously saw the merit in allowing this device for special conditions in which this device outperforms a P-trap in long periods of non-use and in conditions where occasional freezing may occur. Freezing conditions will cause a P-trap to fail because ice in the trap will expand and crack a P-trap. When the trap cracks, the water leaks out causing water damage and future leaks from water use in fixtures where water flows down the drain and leaks out the P-trap which can lead to mold issues if not discovered quickly. A cracked trap also eliminates the water seal and allows sewer gas to enter the building. In both of these examples a P-trap will allow sewer gas to escape into the building, where an in-line sanitary waste valve that conforms to ASME A112.18.8 with work fine in these extreme conditions. Other advantages of the device are it can prevent sewage backups from emanating from the fixture to a degree. The device will also prevent insects and vermin from entering a fixture through a dried out p-trap.
During the Code hearings, there was opposition testimony that erroneously testified that these devices were intended for urinals. These devices are only manufactured for 1-1/4 inch and 1-1/2 inch tubing Not 2 inch tubing which is the outlet size for urinals. There is language in the Standard stating these devices are not intended for urinals. Finally one opponent stated the packaging calls for use on urinals. There is no such language on the U.S.A. packaging that allows them to be used on urinals. The proponent may have obtained packaging from a European model where they are used on urinals in Europe where they have smaller outlet piping. There is no such language on the U.S.A. packaging.

There was also erroneous testimony that stated this was the same code change was submitted to the IPC and turned down. That is not a true statement, the manufacturer did not submit this to the IPC they only submitted this code change to the IRC. A member of ASME committee (in an attempt to submit all ASME standards that are not currently referenced in the codes) inadvertently submitted a code change to accept the Sanitary Waste Valve Standard (ASME A112.18.8) to the wrong code. They submitted it to the Chapter 14 of the IPC without any accompanying code language in the body of the code and without the necessary exceptions related to the code sections similar to what was done in this residential code change proposal. The manufacturer intended it to be submitted to the IRC.

The Standard was incorrectly submitted to the IPC without the accompanying code language in the body of the code. So the testimony that this same code change was submitted to the IPC and denied is inaccurate. This inaccurate testimony may have swayed some votes in the on-line voting.

This code change proposal is for a new plumbing product that currently does not exist in construction codes in the USA. The device outperforms p-traps in testing with solids flushed down the pipe and when there are long periods of non-use p-traps evaporate, but the sanitary waste valve device continues to protect the building from sewer gas. The sanitary waste valve serves the same function as a trap, but it is not a water seal p-trap. A water seal p-trap is based on a dip in the tubing to catch or trap water in the drain to provide a liquid seal between the interior of a building and

the sewer gasses and odors in the public sewer system.

This product is called an "In-Line Sanitary Waste Valve" because it has an elastomeric bladder that seals very efficiently and easily opens to allow liquids and solids to pass. Its primary design application is to work in buildings that may be occasionally subjected to long periods of non-use. It does not rely on a water seal so it can sit for very long periods without water or liquids and it will still prevent sewer odors from entering the building from the public sewers.

P-traps will dry up and allow sewer odors to escape into the building when the fixture has not been used for a period of time. (Most p-traps lose their seal in a couple of weeks) Another function the Sanitary Waste valve performs beter than a P-trap is it prevents freezing and cracking of a water sealed trap. As ice expands in a P-trap and it will expand and crack the trap allowing the water to drain out and cause water damage and the trap loses its seal. It does not "Trap water" it uses a flexible membrane and therefore it needs to be identified separately from a p-trap with an exception. P-traps will often plug when dirt and heavy solids are washed into the sink, lavatory or bathtub drain and they settle in the bottom of the trap. In-line sanitary waste valves easily pass these solids. P-traps often crack and leak when exposed to freezing temperatures and the ice expands and cracks the p-trap. In-line sanitary waste valves perform very well in freezing conditions and they still prevent sewer gasses from entering a building when the fixture has not been used for an extended period. Long periods of non-use is common for many seasonal type hotel, school and state park types of buildings. Sanitary waste valves have been used extensively in many other parts of the world very successfully. (Europe, South Africa, and Asia)

This proposal is seeking to allow the use of in-line sanitary waste valves that conform to the requirements of the attached ASME A112.18.8 Standard to be used as an alternate to p-traps in special conditions where freezing and evaporation are concerns. This proposal is not intended to replace p-traps. These devices cost more than a p-trap, so they will not take over the market. They are intended to only be used on sinks, lavatories, and bathtubs where freezing conditions may exist. One builder said he would like to be able to use these devices in townhomes where the second story has a cantilevered overhang where traps from the fixtures above often freeze and crack. Others have said these devices would be ideal for seasonal buildings like cabins, vacation homes, guest bathrooms, bar sinks, homes that are empty and for sale for long periods or any other building that has long periods of non-use or in any building where traps can freeze or dry up. This option is currently not available in the code and this code change is intended to give consumers a choice for a better product if they choose to purchase it.

The code addresses a few requirements for P-Traps, but there is not standard for P-traps. The manufacturer of the sanitary waste valve device realized that you cannot expect a Sanitary waste valve to fit the description of a trap and there was not standard for a trap to test the device to for equivalency. Because there is no performance standard for a P-trap, the manufacturer had to develop a standaard for this new type of product. The manufacturer went to the American Society of Mechanical Engineers to develop a Standard for th product. The Standard is ASME A112.18.8, the standard was titled: "In-Line Sanitary Waste Valves for Plumbing Drainage Systems". This standard includes a "Scope" that states these devices are intended "for use as an alternate to tubular p-traps" (1-1/4 inch and 1-1/2 inch at sinks, lavatories and bathtubs only) The standard also covers the material and performance requirements for the product. It also states that "these devices are not intended for use with water closets and urinals".

The Standard includes "material requirements" for the device to comply with the seal material requirements in "ASTM F409 Standard Specification for Thermoplastic Accessible and Replaceable Plastic Tube and Tubular Fittings". It also addresses the "Seal material to comply with or exceed the following material requirements from ASTM D2000: M3BA507, A14, B13, C12 and F17 or M2BG714, B14, EO14, and EO34. The ASTM D2000 standard is an industry standard for testing rubber and polymer products. These material requirements have been confirmed with a 3rd party laboratory test report.

Test Requirements

The test requirements in the standard titled "ASME A112.18.8-2014 In-Line Sanitary Waste Valves for Plumbing Drainage Systems" are as follows:

Waterway Flow Rate Test: Flow rates not less than 1-1/4 in.: 9.5 gpm, valve alone on wash basin, bidet, 1-1/2 in.: 13.5 gpm, valve alone on bath, and 1-1/2 in.: 11.1 gpm , valve alone on kitchen sink.

One-Way Sealing Performance of the Valve Test: Apply air pressure to end of the tubing until a pressure of 2 in. (51 mm) of water, gage, is registered on the u-tube manometer. Maintain pressure for 10 sec.

Airway Flow Rate Test: Must flow 1 cfm minimum.

Recovery From an Excess Back Pressure (Inversion) Condition Test: The sink must completely drain after valve bladder is inverted and water flows into the sink.

Leak Tightness Test: The valve must be tested using an internal pressure of 25 psi (172 kPa) for 1 hr.

Thermal Cycling Test: Thermal cycling test procedure for 5 cycles and allow 5 sec of draining time between cycles:
7.9 gpm of water at a temperature of 203°F ± 4°F (95°C ± 2°C) over a period of 15 min at a constant flow rate
7.9 gpm of water at a temperature of 68°F ± 10°F (20°C ± 5°C) over a period of 10 min at a constant flow rate

Cyclic Fatigue Test: The valve shall allow 60 sec for draining between cycles: 1,500 cycles of 60 sec
± 2 sec duration, at a temperature of 200°F ± 4°F followed by 60 sec at a temperature of 59°F ± 10°F, flow rate 7.9 gpm ± 0.1 gpm.

Resistance to Household Substances Test: The material shall be placed on or around the sink outlet. Four pints of water will then be poured onto the item to flush the material from the sink. The system will then be left for 24 hr. Substances tested are uncooked long-grain rice, diced vegetable of size 1/4 in, liquid soaps, kiln-dried sand and lard—95% water, 5% melted lard, each at 150°F.

Resistance to Chemicals and Solvents Test: The material shall be poured into the sink outlet. After one minute, pour 4 pt of cold water into the sink outlet to flush the solvent from the sink. The system will then be left for 24 hr. Solvents were liquid drain cleaner containing sulfuric acid, mineral spirits and kerosene.

Drop Test: The test shall be conducted over a clean concrete surface. Hold the valve with the lowest point upside down, 3 ft above the surface and release the valve, repeat twice, changing the orientation of the valve each time.

Life Cycle Test: The valve under test shall undergo 20,000 cycles. A cycle comprises 10 sec exposure to the solution, followed by 10 sec of draining.

It should be noted there is no standard for a P-trap and P-traps are not subjected to any tests. This proposal is not to eliminate P-traps it is to offer an alternative to P-traps for installations where evaporation or freezing are concerns.

Public Comment 2:

Proponent : Assembly Action requests Disapprove.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Disapprove was successful by a vote of 62.5% (95) to 37.5% (57) by eligible members online during the period of May 14 - May 28, 2015.

Public Comment 3:

Proponent : Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com) requests Disapprove.

Commenter's Reason: This proposal removes the use of traps, which would eliminate the requirement for vents. Section P3101.2 requires that any plumbing fixture's trap be protected from pressure differentials by a system of vents and section P3101.2.1 requires that every trap and trapped fixture shall be vented. Remove the trap and you remove the vent requirement. These devices may be allowed now on a case by case basis by the use of Section R104.11 Alternative materials, design and methods.

Public Comment 4:

Proponent : Shawn Strausbaugh, representing VA Plumbing and Mechanical Inspectors Association (VPMIA), VA Building Code Officials Association (VBCOA) (sstrausbaugh@arlingtonva.us) requests Disapprove.

Commenter's Reason: Based upon the outcome of the assembly motion vote for disapproval of this proposed change, 63% in favor of disapproval and 38% against disapproval, and the IPC committees action to disapprove this change it is clear that these mechanical devices in lieu of a water seal trap are not proper way to protect the occupants of a building or structure from sewer gases entering a structure. This type of device appears to violate the provisions prohibited trap design and by placing an exception for such a device does not solve the problem of traps with movable parts or interior partitions.

Basing the use of these devices on previous use in the recreational vehicle industry or comparing these devices to trap seal protection devices in not a fair comparison as trap seal protection devices are a secondary protection method and not a primary protection method for keeping sewer gases from entering a structure or building. The RV plumbing system and the IRC one and two family plumbing systems differ greatly and again this is type of comparison was not substantiated in the original proposal.

RP19-15

RM8-15

M1502.3 (New)

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies, Inc (JBENGINEER@aol.com)

2015 International Residential Code

Add new text as follows:

M1502.3 Make-up air for tight construction. Make-up air shall be provided for clothes dryers where the air infiltration rate is known to be less than 0.4 air changes per hour (ACH). Make-up air shall be provided by a duct that communicates with the outdoors, a ventilated crawl space, or a ventilated attic space and such duct shall have a cross sectional area not less than that of a 4 inch round duct. The make-up air duct shall open into the room in which the clothes dryer is located. Make-up air duct inlets shall be provided with a screen having a mesh size not less than ¼ inch and not greater than ½ inch. The make-up air inlet shall be equipped with an air admitting damper that opens during the operation of the clothes dryer.

Exception: Condensing dryers shall not require make-up air.

Reason: Today homes are much more tightly constructed, creating an inadequate condition for the proper operation of a clothes dryer. The exhaust rate for a residential dryer ranges from 125 to 200 cfm with newer dryers favoring 200 cfm. When the air infiltration rate drops to less than 0.4 air changes per hour, this creates a condition of inadequate make-up for the clothes dryer. When there is inadequate ambient air to pull from, the dryer is starved and not capable of efficiently drying the clothes any longer. This extends the length of time for the dryer cycle wasting energy. It also reduce the life of the dryer since the fan is attempting to exhaust air that is not available.

Many clothes dryers are located in the basement of a home. When located in the basement, they have the available air in the basement as make-up air for exhausting the moisture. If a basement in 25 feet by 25 feet with an 8 foot ceiling, there is 5,000 cubic feet of available air. However, with an air exchange rate of 0.4, the available air for exhaust is 2000 cubic feet. That translates to 33.3 cfm of air. This means that the dryer has to draw air from other locations in order to properly operate, potentially pulling it from other unsafe sources.

Outside air is normally required by combustion air when the air infiltration rate is less than 0.4 as identified in Section G2407.5. This code change is consistent by requiring make-up air when the air exchange rate is below this value. The amount of air required for combustion air is normally less than the amount of make-up air for a dryer exhaust. An 80,000 Btu/hr furnace only requires between 16.6 and 26.6 cfm for combustion air, whereas the dryer requires between 125 and 200 cf

With a 4 inch duct, the make-up air can be provided at an acceptable rate. Furthermore, the fan in the clothes dryer would draw the make-up air through the make-up air duct.

A screened air admitting damper or equivalent device is necessary to prevent outside air from entering the home when the clothes dryer is not in use. The screen dimension are taken from Table 401.5 of the IMC for residential occupancies. The air admitting damper also prevents the loss of conditioned air when the dryer is not in use.

Cost Impact: Will increase the cost of construction
There will be an increase cost to install a make up air duct.

RM8-15 : M1502.3 (New)-BALLANCO3701

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There are too many variables to apply such a requirement. Kitchen hoods don't need makeup air until they exceed an exhaust rate of 399 cfm. This is too restrictive and would apply to electric dryers.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

M1502.3 Make-up air ~~for tight construction~~. Make-up air shall be provided for clothes dryers ~~where the air infiltration rate is known to be~~ located in rooms or spaces having a volume of less than ~~0.4 air changes per hour (ACH)~~ 15,000 cubic feet. Make-up air shall be provided ~~by a duct~~ through an opening that ~~communicates with the outdoors, a ventilated crawl space, or a ventilated attic space and such duct shall have a cross sectional area~~ is not less than 60 square inches in area and that ~~of a 4 inch round duct. The make-up air~~ communicates directly or through a duct ~~shall open into the room in which the clothes dryer is located. Make-up air duct inlets shall be provided~~ with ~~a screen~~ indoor spaces having a ~~mesh size not less than ¼ inch and not greater than ½ inch. The make-up air inlet shall be equipped~~ volume of 15,000 cubic feet or more, the outdoors or spaces that freely communicate with ~~an air admitting damper that opens during~~ the ~~operation of the clothes dryer~~ outdoors.

Exception: Condensing dryers shall not require make-up air.

Commenter's Reason: It was clearly agreed that make up air is necessary for a clothes dryer to operate effectively. The make-up air required is not combustion air as assumed by a few. The make-up air is needed for the clothes to be dried. The clothes dryer moves the air, either heated or not, to remove the moisture from the clothes. This air is exhausted to the outdoors. The rate of exhaust air for a dryer varies based on the length of the dryer exhaust vent.

One of the concerns expressed was having a definitive number to use when a dryer requires make-up air. Using an exhaust rate of 125 cfm and an air exchange rate of 0.5 air changes per hour, the volume of air required without make-up air would be 15,000 cubic feet. Again using the 125 cfm exhaust rate and the passive air movement of 300 feet per minute, the minimum size opening would be 60 square inches. This would allow the dryer to use air from either the adjacent spaces or from

outdoors.

RM8-15

RM9-15
M1502.3

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

2015 International Residential Code

Revise as follows:

M1502.3 Duct termination. Exhaust ducts shall terminate on the outside of the building. Exhaust duct terminations shall be in accordance with the dryer manufacturer's installation instructions. If the manufacturer's instructions do not specify a termination location, the exhaust duct shall terminate not less than 3 feet (914 mm) in any direction from openings into buildings. Exhaust duct terminations shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. Exhaust duct penetrations of exterior wall and roof assemblies shall be sealed air-tight to prevent the dryer exhaust from re-entering the building.

Reason: This change clarifies that the dryer exhaust must vent to the outside without the possibility of having the dryer exhaust return to the building. In some regions, friction-fitting a ducts' end into a roof cap appears to still be acceptable. This change adds the language to require a positive leak-proof assembly that will prevent the dryer exhaust from reentering the building. The high humidity of the dryer exhaust can cause all sorts of problems within the building elements if the dryer exhaust can reenter the building. Humidity control is an important part of any building design. As such, humid lint-laden air should never be given a path to enter the building after being exhausted.

Cost Impact: Will not increase the cost of construction
This change clarifies the intent of the code.

RM9-15 : M1502.3-BALLANCO4119

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This subject is already covered in the IECC. How does one interpret "air tight"? This is a workmanship issue, not a code issue. All wall and roof penetrations need to be sealed anyway.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

M1502.3 Duct termination. Exhaust ducts shall terminate on the outside of the building. Exhaust duct terminations shall be in accordance with the dryer manufacturer's installation instructions. If the manufacturer's instructions do not specify a termination location, the exhaust duct shall terminate not less than 3 feet (914 mm) in any direction from openings into buildings. Exhaust duct terminations shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. ~~Exhaust duct penetrations of exterior wall and roof assemblies shall be sealed air-tight to prevent the dryer exhaust from re-entering the building.~~

M1502.3.1 Roof Penetrations. Where an exhaust termination penetrates a roof, a flashing shall be installed in accordance with Section R903.2.

M1502.3.2 Penetrations of exterior walls. Where an exhaust termination penetrates an exterior wall, a waterproof seal shall be made on the exterior of the wall by one of t he following methods:

1. A waterproof sealant applied at the joint between the wall and the penetrating item.
2. A flashing of an approved elastomeric material.

Commenter's Reason: What this code change pointed out is that the code is remiss regarding penetrations of mechanical system. In the plumbing section, P2607 provides detailed requirements regarding pipe penetrations of roofs and exterior walls. However, no such section exists in the mechanical section of the code. This is highlighted in Section R905.2.8.4. This section has flashing requirements for plumbing piping systems and chimneys, but ignores duct and exhaust terminations. A proposed change will be submitted next cycle to add the requirements for duct and exhaust penetrations to R905.2.8.4.

This modification will correct the oversight regarding penetrations. Everyone acknowledged that sealing the opening around a duct termination was necessary. However, the claim was that this is addressed in the Energy Code. Exterior penetrations are not addressed in the Energy Code, only penetrations of the envelope are addressed. Quite often, exterior penetrations are not envelope penetrations.

RM9-15

RM10-15
M1502.3

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

2015 International Residential Code

Revise as follows:

M1502.3 Duct termination. Exhaust ducts shall terminate on the outside of the building. Exhaust duct terminations shall be in accordance with the dryer manufacturer's installation instructions. If the manufacturer's instructions do not specify a termination location, the exhaust duct shall terminate not less than 3 feet (914 mm) in any direction from openings into buildings. Exhaust duct terminations shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. Dryer exhaust duct terminations shall, by design, provide access for cleaning the exhaust duct.

Reason: The routine cleaning of the dryer exhaust ducts minimizes the potential for a fire in the duct as well as increasing the efficiency of the appliance. Duct cleaning services now provide this service for dryer exhaust ducts using a wand and brush. Many duct cleaning service companies enter the dryer exhaust duct through the duct termination. This offers an easy access to the dryer exhaust duct system. If a proper dryer exhaust terminal is not provided that allows ease of access, some companies have been known to wrongly remove the termination lid or cover creating a potential leak situation.

Examples of vent caps that duct cleaners wrongly disassemble to gain access.

Examples of vent caps that duct cleaners wrongly disassemble to gain access.

Cost Impact: Will increase the cost of construction
The exhaust terminal may cost more.

RM10-15 : M1502.3-BALLANCO4122

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is a maintenance issue that the homeowners need to address. Approved exhaust terminals will already allow access for cleaning.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

M1502.3 Duct termination. Exhaust ducts shall terminate on the outside of the building. Exhaust duct terminations shall be in accordance with the dryer manufacturer's installation instructions. If the manufacturer's instructions do not specify a termination location, the exhaust duct shall terminate not less than 3 feet (914 mm) in any direction from openings into buildings. Exhaust duct terminations shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. Dryer exhaust ducts that are installed in enclosed wall or ceiling cavities or in attic areas shall have duct terminations ~~shall, by design,~~ that provide access for cleaning the ~~exhaust~~ duct.

Commenter's Reason: It was pointed out at the first hearing that some ducts penetrate the basement wall and are readily available for cleaning on the inside of the home. The intent of this requirement was to apply to long duct runs that are not readily accessible on the interior of the building. This will allow the cleaning of the dryer exhaust duct from the outside.

The lint build up on the interior of the dryer exhaust duct presents a fire hazard. These ducts need regular cleaning to reduce the fire hazard and increase the efficiency of the dryer.

The majority of dryer exhaust terminations are held in place with screws. Removing these screws allows easy access for cleaning. This change would prevent the use of roof jacks that are not intended to be used as dryer exhaust terminals.

RM10-15

RM13-15

M1502.4.2.1 (New)

Proposed Change as Submitted

Proponent : Rick Harpenau, In-O-Vate Technologies, representing In-O-Vate Technologies (rick@dryerbox.com)

2015 International Residential Code

Add new text as follows:

M1502.4.2.1 Exhaust termination pathways. . Dryer exhaust duct terminal pathways that cause a change in direction of air flow between 45 and 90 degrees shall have an area not less than 20 percent larger that the cross sectional area of the exhaust duct served. Dryer exhaust duct terminal pathways that cause a change in direction of air flow greater than 90 degrees shall have an area not less than 30 percent larger than the cross sectional area of the exhaust duct served. Exhaust duct terminal passageways shall maintain throughout an area of not less than 12.5 square inches (8,065 sq mm).

Reason: The code is very sensitive and detailed as it relates to 90 degree elbows and their respective friction loss but does not prohibit or penalize for termination hoods that grossly create back pressure, reducing the efficiency of the dryer. There are wall vents and roof vents on the market that with minimal testing equipment show clearly they create as much back pressure as 3 and 4 elbows. Short of requiring testing standards for every vent termination, the council should consider language whereby the passageway increases in size to make up for the friction causing bends. If this addition to the codes makes sense, actual calculations can be provided. Bottom line, treat terminations the same as elbows and run lengths. Video Links:

www.youtube.com/watch?v=5KnRp3eXNbk

http://youtu.be/ZL2zV1-GjdI?t=50s

Cost Impact: Will increase the cost of construction
The increase size may result in a higher cost.

RM13-15 : M1502.4.2.1 (New)-HARPENAU4553

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal does not address ells. No one makes a 5 inch ell. The "terminal pathway" sounds like it describes the entire duct system. The code already contains a table for duct fittings. The percentage calculation is complicated.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

~~**M1502.4.2.1 Exhaust termination pathways.** . Dryer exhaust duct terminal pathways that cause a change in direction of air flow between 45 and 90 degrees shall have an area not less than 20 percent larger that the cross-sectional area of the exhaust duct served. Dryer exhaust duct terminal pathways that cause a change in direction of air flow greater than 90 degrees shall have an area not less than 30 percent larger than the cross-sectional area of the exhaust duct served. Exhaust duct terminal passageways shall maintain throughout an area of not less than 12.5 square inches (8,065 sq mm).~~

M1502.3.1.1 Increase in exhaust termination outlet size. Where the passageway of a dryer exhaust duct terminal changes direction more than 90 degrees, the open area of the outlet of the terminal shall be not less than 15 square inches (9,677 sq mm).

Commenter's Reason: The Committee indicated that this language was too confusing. The modified language coordinates with the new section M1502.3.1. SMACNA lists the K factor for a 90 degree elbow as being 1 and a 130 degree elbow as being 1.2. To equal the pressure loss through the termination, the outlet open area would have to be increased by a factor of 1.2. This results in an open area of 15 square inches. This will result in the equivalent pressure loss through the exhaust termination.

RM13-15

RM14-15

M1503, M1503.1 (New), M1503.2 (New), M1503.2.1 (New), M1503.1, M1503.2, M1505, M1505.1

Proposed Change as Submitted

Proponent : Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Residential Code

Revise as follows:

SECTION M1503
~~RANGE HOODS~~ DOMESTIC COOKING EXHAUST EQUIPMENT

Add new text as follows:

M1503.1 General. Domestic cooking exhaust equipment shall comply with the requirements of this section.

M1503.2 Domestic cooking exhaust. Where domestic cooking exhaust equipment is provided it shall comply with one of the following:

1. Overhead range hoods and downdraft exhaust equipment not integral with the cooking appliance shall be listed and labeled in accordance with UL 507.
2. Domestic cooking appliances with integral downdraft exhaust equipment shall be listed and labeled in accordance with UL 858 or ANSI Z21.1.
3. Microwave ovens with integral exhaust for installation over the cooking surface shall be listed and labeled in accordance with UL 923.

M1503.2.1 Open top broiler exhaust. Domestic open-top broiler units shall be provided with a metal exhaust hood, having a thickness of not less than 0.0157-inch (0.3950 mm) (No. 28 gage). Such hood shall be installed with a clearance of not less than 1 /4 inch (6.4 mm) between the hood and the underside of combustible material and cabinets. A clearance of not less than 24 inches (610 mm) shall be maintained between the cooking surface and combustible material and cabinets. The hood width shall be not less than the width of the broiler unit and shall extend over the entire unit.

> **Exception**: Broiler units that incorporate an integral exhaust system, and that are listed and labeled for use without an exhaust hood, shall not be required to have an exhaust hood.

Revise as follows:

~~M1503.1~~ M1503.3 ~~General~~ Exhaust discharge. ~~Range hoods~~ Domestic cooking exhaust equipment shall discharge to the outdoors through a duct. The duct ~~serving the hood~~ shall have a smooth interior surface, shall be air tight, shall be equipped with a back-draft damper and shall be independent of all other exhaust systems. Ducts serving ~~range hoods~~ domestic cooking exhause equipment shall not terminate in an attic or crawl space or areas inside the building.

Exception: Where installed in accordance with the manufacturer's instructions, and where mechanical or natural *ventilation* is otherwise provided, *listed* and *labeled* ductless range hoods shall not be required to discharge to the outdoors.

~~**M1503.2**~~ **M1503.4 Duct material.** Ducts serving ~~range hoods~~ domestic cooking exhaust equipment shall be constructed of galvanized steel, stainless steel or copper.

Exception: Ducts for domestic kitchen cooking *appliances* equipped with down-draft exhaust systems shall be permitted to be constructed of schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:

1. The duct is installed under a concrete slab poured on grade.
2. The underfloor trench in which the duct is installed is completely backfilled with sand or gravel.
3. The PVC duct extends not more than 1 inch (25 mm) above the indoor concrete floor surface.
4. The PVC duct extends not more than 1 inch (25 mm) above grade *outside of the building.*
5. The PVC ducts are solvent cemented.

Delete without substitution:

~~**SECTIONM1505 OVERHEAD EXHAUST HOODS**~~

~~**M1505.1 General.** Domestic open-top broiler units shall have a metal exhaust hood, having a minimum thickness of 0.0157 inch (0.3950 mm) (No. 28 gage) with $^1/_4$ inch (6.4 mm) clearance between the hood and the underside of combustible material or cabinets. A clearance of not less than 24 inches (610 mm) shall be maintained between the cooking surface and the combustible material or cabinet. The hood shall be not less than the width of the broiler unit, extend over the entire unit, discharge to the outdoors and be equipped with a backdraft damper or other means to control infiltration/exfiltration when not in operation. Broiler units incorporating an integral exhaust system, and *listed* and *labeled* for use without an exhaust hood, need not have an exhaust hood.~~

Reason: This proposal accomplishes the following:

1. Changes the name of Section M1503 from Range Hoods to Domestic Cooking Exhaust Equipment, which more accurately reflects the duct, makeup air, and exhaust air requirements in the section.
2. Adds a charging paragraph for the Section to M1503.1.
3. Describes the listing standards used to investigate the various types of exhaust equipment in Section M1503.2.
4. Relocates Section M1505.1 for open top broilers to section M1503.2.1.
5. Makes editorial revisions for clarity.

Cost Impact: Will not increase the cost of construction
It is primarily editorial in nature.

RM14-15 : M1503-ROBERTS5726

Public Hearing Results

Committee Action: Approved as Modified

Modification:

M1503.3 Exhaust discharge. Domestic cooking exhaust equipment shall discharge to the outdoors through a duct. The duct shall have a smooth interior surface, shall be air tight, shall be equipped with a back-draft damper and shall be independent of all other exhaust systems. Ducts serving ~~range hoods~~domestic cooking exhaust equipment shall not terminate in an attic or crawl space or areas inside the building.

> **Exception:** Where installed in accordance with the manufacturer's instructions, and where mechanical or natural ventilation is otherwise provided, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.

Committee Reason: Approval is based on the proponent's published reason statements. The proposal is a logical reorganization of text. The modification provides consistency within the proposal regarding terminology.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Residential Code

M1503.2 Domestic cooking exhaust. Where domestic cooking exhaust equipment is provided it shall comply with one of the following:

1. ~~Overhead~~ The fan for overhead range hoods and downdraft exhaust equipment not integral with the cooking appliance shall be listed and labeled in accordance with UL 507.
2. Overhead range hoods and downdraft exhaust equipment with intergral fans shall compy with UL 507.
3. Domestic cooking appliances with integral downdraft exhaust equipment shall be listed and labeled in accordance with UL 858 or ANSI Z21.1.
4. Microwave ovens with integral exhaust for installation over the cooking surface shall be listed and labeled in accordance

with UL 923.

Commenter's Reason: This change as originally proposed exceeds the scope of UL 507. UL 507 is a standard for fans and blowers, not range hoods. Included in the scope of the standard are overhead range hoods and downdraft exhaust equipment that have integral hoods. UL 507 does not regulate stand-alone range hoods that do not have an integral fan.

These prefabricated range hoods have served the industry successfully for many years. There is no justification for removing a viable range hood. If the code change is approved as proposed, one could only install a range hood that has an integral fan. That would be overly restrictive.

The modification corrects the mistake with the original submittal. UL 507 regulates all fans used for overhead range hoods and downdraft exhaust equipment. It also addresses range hoods and downdraft exhaust equipment with integral fans.

UL 507 does not regulate range hoods, whether prefabricated or field made. Hence, it is inappropriate to reference the standard for this application.

If this modification is not accepted, the change must be denied since the reference to UL 507 exceeds the scope of the standard. This is a violation of ICC policy.

RM14-15

RM17-15
M1503.4

Proposed Change as Submitted

Proponent : Janine Snyder, City of Thornton, Colorado, representing Colorado Association of Plumbing & Mechanical Officials (CAPMO) (Janine.Snyder@cityofthornton.net)

2015 International Residential Code

Delete and substitute as follows:

M1503.4 Makeup air required. ~~Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m^3/s) shall be mechanically or naturally provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with not less than one damper. Each damper shall be a gravity damper or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced.~~

Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m^3/s) shall be mechanically or naturally provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with not less than one damper. Each damper shall be an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced.

Reason: By practice they just don't work unless installed running downhill in the duct which can create a faulty seal within the duct allowing additional leakage. The whole intent is to have the electronic connection between the hood and damper. Volume dampers are subject to not fully closing when installed in the horizontal run due to wind and interior vs exterior pressure diffentials. Additionally, they can create an unintended opening in the building envelope which is a prohibition in the energy code.

Cost Impact: Will increase the cost of construction
This will slightly increase the cost of construction by returning to practices. However, the energy cost impact of having an opening into a conditioned structure from the exterior mitigates the increased construction cost.

RM17-15 : M1503.4-SNYDER5667

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposed text is too restrictive in that it eliminates gravity dampers. An option is needed for both types of dampers, gravity and motorized.

Assembly Motion: **As Submitted**
Online Vote Results: **Failed**
Support: 29.57% (55) Oppose: 70.43% (131)
Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, City of Thornton, Colorado, representing Colorado Association of Plumbing & Mechanical Officials, CAPMO (Janine.Snyder@cityofthornton.net) requests Approve as Submitted.

Commenter's Reason: By practice they just don't work unless installed running downhill in the duct which can create a faulty seal within the duct allowing additional leakage. The whole intent is to have the electronic connection between the hood and damper. Volume dampers are subject to not fully closing when installed in the horizontalrun due to wind and interior vs exterior pressure diffentials. Additionally, they can create an unintended opening in the building envelope which is a prohibition in the energy code.

RM17-15

RM20-15

M1506.3, R303.5, R303.5.1, R303.5.2

Proposed Change as Submitted

Proponent : Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Residential Code

Revise as follows:

M1506.3 Exhaust openings. ~~Air exhaust openings shall terminate not less than 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable and nonoperable openings into the building and 10 feet (3048 mm) from mechanical air intakes except where the opening is located 3 feet (914 mm) above the air intake.~~
Openings shall comply with Sections R303.5.2 and R303.6.

R303.5 Opening location. Outdoor intake and exhaust openings shall be located in accordance with Sections R303.5.1 and R303.5.2.

R303.5.1 Intake openings. Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) from any hazardous or noxious contaminant source, such as vents, chimneys, plumbing vents, streets, alleys, parking lots and loading docks.
For the purpose of this section, the exhaust from *dwelling* unit toilet rooms, bathrooms, kitchens, and ~~kitchens~~ other living space shall not be considered as hazardous or noxious.

~~**Exceptions:**~~

~~1. The 10-foot (3048 mm) separation is not required where the intake opening is located 3 feet (914 mm) or greater below the contaminant source.~~
~~2. Vents and chimneys serving fuel-burning appliances shall be terminated in accordance with the applicable provisions of Chapters 18 and 24.~~
~~3. Clothes dryer exhaust ducts shall be terminated in accordance with Section M1502.3.~~

R303.5.2 Exhaust openings. Exhaust air shall not be directed onto walkways. Air exhaust openings shall terminate not less than 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable and nonoperable openings into the building; and 10 feet (3048 mm) from mechanical air intakes.

Exceptions:

1. The 10-foot (3048 mm) separation between intake and exhaust openings is not required where the intake opening is located 3 feet (914 mm) or greater below the contaminant source.
2. Vents and chimneys serving fuel-burning appliances shall be terminated in accordance with the applicable provisions of Chapters 18 and 24.
3. Clothes dryer exhaust ducts shall be terminated in accordance with Section M1502.3.

4. Where a combined exhaust and intake terminal is used to separate intake air from exhaust air originating in living space other than kitchens, a minimum separation distance between these two openings is not required provided that the exhaust air concentration within the intake air flow does not exceed 10%, as established by the manufacturer of such terminal.

Reason:
Combined exhaust/supply terminations are regularly installed with heating and energy recovery ventilators (H/ERVs). Their use reduces building penetrations, labor, and associated system costs. By reducing the number of penetrations, air leakage can also be reduced, resulting in space conditioning energy savings. Further, the durability of the structure can be improved through reducing entry pathways for bulk water. Combined terminations are regularly approved and installed in single family and multifamily dwelling units across the country, and manufacturer tests have demonstrated that minimum cross-contamination of airflow results from these terminations. There is currently no industry standard by which to test these units, so we have simply proposed that their performance be verified by the manufacturer, as is the practice in other areas of the code (M2002.5, R502.7, R502.8.2, R703.11.1.1, R802.7.2, R905.2.6, R1003.15.1, R1003.15.2, G2405.3, etc.). The 10% cross contamination metric is based on language in ASHRAE 62.1 that limits cross contamination of exhaust and supply streams to 10% for "air with moderate contaminant concentration, mild sensory-irritation intensity, or mildly offensive odors"; a similar exception exists in the IMC, Section 514.4. In both the IMC and ASHRAE 62.1, no standard is cited for determining cross-contamination, presumably because none yet exists. All exceptions were moved to the exhaust openings section because two of the four exceptions address only exhaust openings; the other two exceptions apply to both intake and exhaust openings, so could feasibly be located in either section.

Cost Impact: Will not increase the cost of construction

This proposal is expected to reduce construction costs by eliminating the need for a second wall cap and extra ducting that would otherwise be required to separate intake and exhaust airstreams.

RM20-15 : M1506.3-MOORE4871

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal would allow any two ducts to be combined under Exception # 4.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Mike Moore, Newport Ventures, representing Broan-NuTone (mmoore@newportventures.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

R303.5.2 Exhaust openings. Exhaust air shall not be directed onto walkways. Air exhaust openings shall terminate not less than 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable and nonoperable openings into the building; and 10 feet (3048 mm) from mechanical air intakes.

Exceptions:

1. The 10-foot (3048 mm) separation between intake and exhaust openings is not required where the intake opening is located 3 feet (914 mm) or greater below the contaminant source.
2. Vents and chimneys serving fuel-burning appliances shall be terminated in accordance with the applicable provisions of Chapters 18 and 24.
3. Clothes dryer exhaust ducts shall be terminated in accordance with Section M1502.3.
4. Where a factory-built combined exhaust and intake ~~terminal~~ termination is used to separate intake air from exhaust air originating in living space other than kitchens, a minimum separation distance between these two openings is not required provided that the exhaust air concentration within the intake air flow does not exceed 10%, as established by the manufacturer of ~~such terminal~~ the termination.

Commenter's Reason: It is important to note that the only substantive change to these sections is contained in R303.5.2 Exception #4. All other changes are essentially editorial/organizational. The same language in R303.5.2 Exception #4 was recently approved unanimously by the ASHRAE 62.2 committee as addendum h to ASHRAE 62.2-2013. In transferring the language to the IRC, the committee objected to Exception #4 because "the proposal would allow any two ducts to be combined under Exception #4". This was not our intention in submitting the proposal, so it has been corrected to clarify that the combined termination must be factory-built, tested, and verified by the manufacturer that it meets the requirements of this section.

Approval of this proposal will simplify the organization of the IRC, align the IRC with ASHRAE 62.2, *Ventilation and Acceptable Indoor Air Quality in Residential Buildings*, reduce the cost of construction, reduce penetrations of the building envelope, and promote the durability of buildings.

RM20-15

RM24-15

M1507.3, M1507.3.1, M1507.3.2, M1507.3.3, Table M1507.3.3(1), Table M1507.3.3(2), M1507.3.4 (New), Table M1507.4.4, M1507.3.5 (New), M1507.4, Table M1507.4

Proposed Change as Submitted

Proponent: Craig Conner, representing self (craig.conner@mac.com); Joseph Lstiburek, representing self (joe@buildingscience.com)

2015 International Residential Code

Revise as follows:

M1507.3 Whole-house mechanical ventilation system. Whole-house mechanical ventilation systems shall be designed in accordance with Sections M1507.3.1 through ~~M1507.3.3~~ M1507.3.6.

M1507.3.1 System design. *No change to text.*

M1507.3.2 System controls. *No change to text.*

M1507.3.3 Mechanical ventilation rate. The whole-house mechanical ventilation system shall provide outdoor air at ~~a continuous~~ an average rate of not less than that determined ~~in accordance with~~ by Equation 15-1 or ~~TableM1507.3.3(1)~~ Table M1507.3.3.

$Q_r = (0.01 \times A_{floor}) + [7.5 \times (N_{br} + 1)]$ **(Equation 15-1)**

where:

Q_r =ventilation flow rate, cubic feet per minute (cfm)

A_{floor} = floor area in square feet (ft^2)

N_{br} = number of bedrooms, not less than one

~~Exception: The whole-house mechanical system is permitted to operate intermittently where the system has controls that enable operation for 25 percent of each 4-hour segment and the ventilation rate prescribed in Table M1507.3.3(1) is multiplied by the factor determined in accordance with Table M1507.3.3(2).~~

TABLE M1507.3.3 ~~(1)~~
~~CONTINUOUS~~ WHOLE-HOUSE MECHANICAL VENTILATION ~~SYSTEM~~ AIRFLOW RATE ~~REQUIREMENTS~~

DWELLING	NUMBER OF BEDROOMS				

UNIT FLOOR AREA (square feet)	0 – 1	2 – 3	4 – 5	6 – 7	> 7
	Airflow in CFM				
<1,500	30	45	60	75	90
1,501 – 3,000	45	60	75	90	105
3,001 – 4,500	60	75	90	105	120
4,501 – 6,000	75	90	105	120	135
6,001 – 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

For SI: 1 square foot = 0.0929 m^2, 1 cubic foot per minute = 0.0004719 m^3/s.

Delete without substitution:

~~TABLE M1507.3.3(2)~~
~~INTERMITTENT WHOLE-HOUSE MECHANICAL VENTILATION RATE FACTORS[a, b]~~

Portions of table not shown for clarity

~~a. For ventilation system run time values between those given, the factors are permitted to be determined by interpolation.~~

~~b. Extrapolation beyond the table is prohibited.~~

Add new text as follows:

M1507.3.4 Ventilation quality adjustment The required whole house ventilation rate from Section M1507.3 shall be adjusted by the system coefficient in Table 1507.3.4 based on the system type using Equation 15-2.

$Q_v = Q_r \times C_{system}$ **(Equation 15-2)**

where:

Q_r = ventilation rate in cubic feet per minute from Equation 15-1 or Table 1507.3.3

C_{system} = system coefficient from Table M1507.3.4

TABLE M1507.3.4
SYSTEM COEFFICIENT

SYSTEM TYPE	DISTRIBUTED[a]		NOT DISTRIBUTED[a]	
	MIXED[b]	NOT MIXED[b]	MIXED[b]	NOT MIXED[b]
Balanced[c]	0.75	1.0	1.0	1.25
Not Balanced[c]	1.0	1.25	1.25	1.5

a. "Distributed" shall apply where outdoor ventilation air is supplied directly to each bedroom and the largest common area; otherwise "not distributed" shall apply.

b. " Mixed" shall apply where not less than 70% of the whole building air volume is recirculated each hour by one or more mechanical systems, otherwise "not mixed" shall apply. Where a central heating or cooling air handler fan is used to provide the mixing, the design heating or cooling airflow rate shall be used to determine the operation time setting required.

c. "Balanced" shall apply where two or more fans simultaneously supply outdoor air and exhaust air at approximately the same rate; otherwise "not balanced" shall apply. Where outdoor air is supplied by a central forced air system, "balanced" shall apply only where the fan for such system operates simultaneously with the exhaust fan(s) .

M1507.3.5 Intermittent operation Systems controlled to operate intermittently shall operate for not less thant one hour in each four hour period. The ventilation rate provided by systems controlled to operate intermittently shall be computed as the average ventilaton provided including both times of operation and non-operation.

Revise as follows:

~~M1507.4~~ M1507.3.6 Local exhaust rates. Local exhaust systems shall ~~be designed to~~ have the capacity to exhaust the minimum air flow rate ~~determined~~ in accordance with Table ~~M1507.4~~ M1507.3.6. Fans required by this section shall be provided with controls that enable manual override, such as an on and off switch. Fan controls shall be provided with ready access from the room served by the fan.

~~TABLE M1507.4~~ TABLE M1507.3.6
MINIMUM ~~REQUIRED~~ LOCAL EXHAUST RATES ~~FOR ONE- AND TWO-FAMILY DWELLINGS~~

AREA TO BE EXHAUSTED	EXHAUST RATES
Kitchens	100 cfm ~~intermittent or 25 cfm continuous~~
Bathrooms-Toilet Rooms	~~Mechanical exhaust capacity of~~ 50 cfm ~~intermittent or 20 cfm~~

	~~continuous~~

Reason: This proposed change adds the equation to compute minimum ventilation rates, adjusts airflow rates based on the effectiveness of the ventilation system type, more clearly states that the occupants shall have controls to adjust the ventilation, and makes several changes to clarify the ventilation section.
The equation on which Table M1507.3.3 is based is added explicitly as Equation 15-1. The equation is an alternative to the ventilation rates in Table M1507.3.3. The rate computed by Equation 15-1 is often lower than the table because the rates in the table have been rounded up to the largest floor area and highest number of bedrooms for each cell in the table.

Some types of ventilation work better than others. The proposal adds a ventilation quality adjustment (new M1507.3.4) based on the type of ventilation system.

This change improves on the code language; for example, although Section M1507.3.3 says the requirement is for a continuous rate, it is clear the section also allows intermittent ventilation. Unneeded words are eliminated. For example the existing Table M1507.3.3(2) and the discussion on "intermittent" in the exception is a long-winded ways of saying rates that are averaged over 4 hour periods also work.

This change makes it clear that occupants can control kitchen and bath fans, allowing them to increase the ventilation when needed. For example, increasing the ventilation if food is burned in the kitchen, or odors in the bathroom suggest higher levels of ventilation.

Some argue ventilation rates need to be substantially increased, but they do not provide evidence that existing rates are inadequate. The existing ventilation rates in the IRC have been used in many programs over the past two decades: Environments for Living program, Engineered for Life program, Energy and Environmental Building Association (EEBA) building recommendations, DOE Building America program experience, Canada's R-2000 program and Canada's Energy Star program.

Excess ventilation causes problems. Excess ventilation causes part load humidity problems in humid climates, which can lead to mold. Excess ventilation causes buildings to get overly dry during the winter leading to problems with wood finishes and furniture. Excess ventilation can cause discomfort to occupants leading to the installation of humidifiers which can be sources of indoor pollutants, leading the occupants to turn off the ventilation system which defeats the purpose of providing ventilation. Finally excessive ventilation leads to big energy costs.

Cost Impact: Will not increase the cost of construction
Overall costs should not increase. The required ventilation airflow rates are based on the same equation as the existing code. Ventilation rates required by the Equation 15-1 option are the same or slightly less than in the existing Table M1507.3.3(1). There will be some increases or decreases in cost depending on the system type, with the code change encouraging the use of the more effective systems. Some options, such as providing ventilation air through a central forced air system, are an inexpensive way to provide ventilation that is both "distributed" and "mixed". Most builders are already using the larger fans in Table M1507.3.6. Operating costs should go down due to encouraging the use of more effective ventilation system types and letting the occupant control ventilation to use it when most needed.

RM24-15 : M1507.3-CONNER5337

Public Hearing Results

Committee Action: Approved as Modified

Modification:

M1507.3.4 Ventilation quality adjustment. The required whole house ventilation rate from Section M1507.3.3 shall be adjusted by the system coefficient in Table 1507.3.4 based on the system type using Equation 15-2.

$Q_v = Q_r \times C_{system}$ (Equation 15-2)

where:

Q_r = ventilation rate in cubic feet per minute from Equation 15-1 or Table 1507.3.3

C_{system} = system coefficient from Table 1507.3.4

Committee Reason: Approval is based on the proponent's published reason statements. The modification adds the option for the table calculation.

Assembly Action : None

Individual Consideration Agenda

Public Comment 2:

Proponent : Craig Drumheller, representing National Association of Home Builders (CDrumheller@nahb.org); Craig Conner, representing self (craig.conner@mac.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

TABLE M1507.3.4

SYSTEM TYPE	**DISTRIBUTED**[a]		**NOT DISTRIBUTED**[a]	
	~~**MIXED**~~[~~b~~]	~~**NOT MIXED**~~[~~b~~]	~~**MIXED**~~[~~b~~]	~~**NOT MIXED**~~[~~b~~]
Mixed[b] or Balanced[c]	0.75	~~1.0~~	1.0	~~1.25~~
Not Mixed[b] and Not Balanced[c]	1.0	~~1.25~~	1.25	~~1.5~~

a. "Distributed" shall apply where ~~outdoor~~ a ducted system serving heating, cooling or ventilation equipment supplies air ~~is supplied~~ directly to each bedroom and the largest common area; otherwise "not distributed" shall apply.

b. " Mixed" shall apply where not less than 70% of the whole building air volume is recirculated each hour by one or more mechanical systems, otherwise "not mixed" shall apply. Where a central heating or cooling air

handler fan is used to provide the mixing, the design heating or cooling airflow rate shall be used to determine the operation time setting required.
c. "Balanced" shall apply where two or more fans simultaneously supply outdoor air and exhaust air at approximately the same rate; otherwise "not balanced" shall apply. Where outdoor air is supplied by a central forced air system, "balanced" shall apply only where the fan for such system operates simultaneously with the exhaust fan(s) .

Commenter's Reason: The original proposal adds a ventilation quality adjustment factor to the whole-house mechanical ventilation system rates based on the effectiveness of the listed ventilation systems. Based on how homes are currently constructed, this proposal drastically increases the amount of ventilation required for most homes- this contradicts the original reason statement from the proponent. Very few homes have balanced ventilation, according to the Home Innovation Builder Practices Survey- only 7% of the homes built in 2014 used balanced ventilation with HRVs or ERVs. As originally proposed, a balanced system is necessary to reduce the required ventilation rate.
This leaves 93% of homes that will either have the same or an increased ventilation rate. In order to maintain the same rate as currently required without using a balanced system two conditions must apply, 1) there must be a supply ventilation system that brings air directly into the house and 2) a central fan is required that will recirculate 70% of the air on an hourly basis. In order to achieve the 70% re-circulation in a 2,400 square foot house, a central fan will need to run continually at 224 cfm. Neither one of these system types are common. All other systems will require a 25-50% increase in flow.
The proposed change provides a simpler table that still provides incentives for the more effective ventilation strategies and deterrents for less effective systems without penalizing typical ventilation systems that are currently acceptable in the majority of homes.

Changes include:

- Homes with forced air systems shall be considered "Distributed"
- "Mixed" and "Balanced" systems shall both get the same consideration.

Homes without a central type forced air system, balanced ventilation or other re-circulation control will have a higher ventilation rate, but as a whole, the ventilation rates should remain the same for most homes with forced air HVAC systems. If additional ventilation strategies are installed, the ventilation rate can be decreased while providing a similar indoor air quality.

Public Comment 3:

Proponent : Alisa McMahon, representing self (mcmahon.gbac@cox.net) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Residential Code

M1507.3 Whole-house mechanical ventilation system. Whole-house mechanical ventilation systems shall be designed in accordance with Sections M1507.3.1 through ~~M1507.3.6~~ M1507.3.5.

M1507.3.3 Mechanical ventilation rate. The whole-house mechanical ventilation system shall provide outdoor air at a continuous rate of not less than that determined in accordance with Equation 15-1 or Table ~~M1507.3.3(1)~~ M1507.3.3.

Exception: The whole-house mechanical ventilation system is permitted to operate intermittently where the system complies with Section M1507.3.5~~has controls that enable operation for 25-percent of each 4-hour segment and the ventilation rate prescribed in Table M1507.3.3(1) is multiplied by the factor determined in accordance with Table M1507.3.3(2).one~~.

$Q_r = (0.01 \times A_{floor}) + [7.5 \times (N_{br} + 1)]$ (Equation 15-1)

where:

Q_r = continuous ventilation flow rate, cubic feet per minute (cfm)

A_{floor} = floor area in square feet (ft^2)

N_{br} = number of bedrooms, not less than

TABLE M1507.3.3
CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION FLOW RATE

DWELLING UNIT FLOOR AREA (square feet)	**NUMBER OF BEDROOMS**				
	1	**2**	**3**	**4**	**5**
	Airflow in CFM				
<500	20	28	35	43	50
501-1,000	25	33	40	48	55
1,001-1,500	30	38	45	53	60
1,501-2,000	35	43	50	58	65
2,001-2,500	40	48	55	63	70
2,501-3,000	45	53	60	68	75
3,001-3,500	50	58	65	73	80

3,501-4,000	55	63	70	78	85
4,001-4,500	60	68	75	83	90
4,501-5,000	65	73	80	88	95

For SI: 1 square foot = 0.0929 m^2, 1 cubic foot per minute = 0.0004719 m^3/s.

~~M1507.3.3~~
~~CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS~~

~~DWELLING UNIT FLOOR AREA (square feet)~~	~~NUMBER OF BEDROOMS~~				
	~~0 – 1~~	~~2 – 3~~	~~4 – 5~~	~~6 – 7~~	~~> 7~~
	~~Airflow in CFM~~				
–	~~30~~	~~45~~	~~60~~	~~75~~	~~90~~
~~1,501 – 3,000~~	~~45~~	~~60~~	~~75~~	~~90~~	~~105~~
~~3,001 – 4,500~~	~~60~~	~~75~~	~~90~~	~~105~~	~~120~~
~~4,501 – 6,000~~	~~75~~	~~90~~	~~105~~	~~120~~	~~135~~
~~6,001 – 7,500~~	~~90~~	~~105~~	~~120~~	~~135~~	~~150~~
~~> 7,500~~	~~105~~	~~120~~	~~135~~	~~150~~	~~165~~

~~For SI: 1 square foot = 0.0929 m^2, 1 cubic foot per minute = 0.0004719 m^3/s.~~

M1507.3.4 Ventilation quality adjustment The required whole house ventilation rate from Section M1507.3.3 shall be adjusted by the system coefficient in Table 1507.3.4 based on the system type using Equation 15-2.

$Q_v = Q_r \times C_{system}$ (Equation 15-2)

where:

Q_v = quality-adjusted ventilation flow rate, cubic feet per minute (cfm)
Q_r = continous ventilation flow rate in cubic feet per minute from Equation 15-1 or Table 1507.3.3
C_{system} = system coefficient from Table 1507.3.4

TABLE M1507.3.4
SYSTEM COEFFICIENT

SYSTEM TYPE	DISTRIBUTED[a]		NOT DISTRBUTED[a]	
	MIXED[b]	NOT MIXED[b]	MIXED[b]	NOT MIXED[b]
Balanced[c]	0.75	1.0	1.0	1.25
Not Balanced[c]	1.0	1.25	1.25	1.5

a. "Distributed" shall apply where outdoor ventilation air is supplied directly to each bedroom and the largest common area; otherwise "not distributed" shall apply.
b. "Mixed" shall apply where not less than 70% of the whole building air volume is recirculated each hour by one or more mechanical systems; otherwise "not mixed" shall apply. Where a central heating or cooling air handler fan is used to provide the mixing, the design heating or cooling airflow rate shall be used to determine the operation time setting required.
c. "Balanced" shall apply where two or more fans simultaneously supply outdoor air and exhaust air at approximately the same rate; otherwise "not balanced" shall apply. Where outdoor air is supplied by a central forced air system, "balanced" shall apply only where the fan for such system operates simultaneously with the exhaust fan(s).

M1507.3.5 Intermittent Operation. The whole-house mechanical ventilation system is permitted to operate intermittently where the system is controlled to operate for not less than 25-percent of each 4-hour segment. The intermittent ventilation rate shall be the quality-adjusted ventilation flow rate prescribed in Section M1507.3.4 multiplied by the factor determined in accordance with Table M1507.3.5.

TABLE ~~M1507.3.3~~ M1507.3.5
INTERMITTENT WHOLE-HOUSE MECHANICAL VENTILATION RATE FACTORS[a, b]

RUN-TIME PERCENTAGE IN EACH 4-HOUR SEGMENT	25%	33%	50%	66%	75%	100%
Factor[a]	4	3	2	1.5	1.3	1.0

a. For ventilation system run time values between those given, the factors are permitted to be determined by interpolation.

b. Extrapolation beyond the table is prohibited.

M1507.4 Local exhaust rates. Local exhaust systems shall ~~be designed to~~ have the capacity to exhaust the minimum air flow rate ~~determined~~ in accordance with Table M1507.4.

TABLE M1507.4
MINIMUM REQUIRED LOCAL EXHAUST RATES FOR ONE- AND TWO-FAMILY DWELLINGS

AREA TO BE EXHAUSTED	EXHAUST RATES
Kitchens	100 cfm ~~intermittent or 25 cfm continuous~~
Bathrooms-Toilet Rooms	~~Mechanical exhaust capacity of~~ 50 cfm ~~intermittent or 20 cfm continuous~~

Commenter's Reason: Note: Text changes are shown in relation to original code. However, "Commenter's Reasons" address the differences between "RM 24-15 as modified by committee" and commenter's proposed replacement.

1. TABLE M1507.3.3 in "RM 24-15 as modified by committee" is identical to TABLE M1507.3.3(1) in the original code. Problems with the table include:

Increments are too large (1500 square feet & 2 bedrooms).

Airflows are calculated using the maximum floor area and largest number of bedrooms in each range.

Both conditions result in higher ventilation air requirements than those calculated with Equation 15-1.

Commenter's proposed TABLE M1507.3.3:

Increments are reduced to 500 square feet and 1 bedroom.

This modification yields results more similar to Equation 15-1 and overall lower ventilation air requirements.

Equation 15-1 can be used for buildings over 5,000 square feet and/or with more than 5 bedrooms.

Examples:

Please see dashed line boxes in the tables below. In the original TABLE M1507.3.3(1), the ventilation air requirement is 90 CFM for buildings from 3,001 to 4,500 square feet with four to five bedrooms. In the commenter's proposed TABLE M1507.3.3, the ventilation air requirement for the same buildings ranges from 73 CFM to 90 CFM.

In a 3001 sq ft / 4 bedroom home, the required ventilation air requirement (CFM) is:

original code Table M1507.3.3(1) 90

proposed Table M1507.3.3 73

Equation 15-1 68

In a 3500 sq ft / 4 bedroom home, the required ventilation air requirement (CFM) is:

original code Table M1507.3.3(1) 90

proposed Table M1507.3.3 73

Equation 15-1 73

[insert image 1 here]

In a 4500 sq ft / 5 bedroom home, the required CFM is:

original code Table M1507.3.3(1)	90
proposed Table M1507.3.3	90
Equation 15-1	90

[insert image 2 here]

2. Commenter added a definition of Q_V in Section M1507.3.4 (not defined in "RM 24-15 as modified by committee").

3. Cost – Mixing and distribution are good. However, the "ventilation quality adjustment" will likely encourage central forced air integrated ventilation systems. Such systems are inexpensive to install, but very expensive to operate in all climate zones. (See operating cost data and comparison in LBNL-40378.) Neither version of this code proposal ("as modified by committee" or commenter's) includes requirements to mitigate the high operating costs and energy consumption associated with central forced air integrated ventilation systems. One example of such a measure would be ECM motors in air handler fans.

4. Intermittent Operation – Commenter's Proposed Section M1507.3.5 is essentially the original code M1507.3.3 Exception modified to include the quality-adjusted ventilation rate. Commenter's proposed TABLE M1507.3.5 is identical to TABLE M1507.3.3(2) in the original code.

The Table is a relatively foolproof approach to intermittent ventilation rate calculation. Conversely, section M1507.3.5 in "RM 24-15 as modified by committee" is not clear: "The ventilation rate provided by systems controlled to operate intermittently shall be computed as the average ventilaton [sic] provided including both times of operation and non-operation."

5.

Bibliography: The airflow requirements in proposed TABLE M1507.3.3 are calculated in accordance with ASHRAE 62.2-2010. However, the increments (500 square feet and 1 bedroom) follow ASHRAE 62.2-2013 (TABLE 4.1a). As in ASHRAE 62.2-2013 (TABLE 4.1a), proposed TABLE M1507.3.3 tops out at 5,000 square feet and 5 bedrooms.

ASHRAE 62.2-2010 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings

ASHRAE 62.2-2013 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings

LBNL-40378 – Recommended Ventilation Strategies For Energy-Efficient Production Homes – Energy Analysis Department, Environmental Energy Technologies Division,

Ernest Orlando Lawrence Berkeley National Laboratory, University of California – Judy A. Roberson, Richard E. Brown, Jonathan G. Koomey, Steve E. Greenberg – December 1998

Public Comment 4:

Proponent : Mike Moore, Newport Ventures, representing Broan-NuTone (mmoore@newportventures.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

M1507.3 Whole-house mechanical ventilation system. Whole-house mechanical ventilation systems shall be designed in accordance with Sections M1507.3.1 through ~~M1507.3.6~~ M1507.3.3.

M1507.3.3 Mechanical ventilation rate. The whole-house mechanical ventilation system shall be installed to provide outdoor air continuously at ~~an average~~ a rate ~~of not less~~ greater than or equal to that determined by Equation 15-1 or~~–~~ , alternatively, Table M1507.3.3.

$Q_r = (0.01 \times A_{floor}) + [7.5 \times (N_{br} + 1)]$ **(Equation 15-1)**

where:

Q_r = ventilation flow rate, cubic feet per minute (cfm)

A_{floor} = floor area in square feet (ft^2)

N_{br} = number of bedrooms, not less than one

> **Exception:** The whole-house mechanical ventilation system is permitted to operate intermittently where the system has controls that enable operation for not less than one hour in each four hour period. The average ventilation rate provided by the system over each 4 hour period shall be greater than or equal to the rate calculated in accordance with this Section.

TABLE M1507.3.3
CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION AIRFLOW RATE

For SI: 1 square foot = 0.0929 m^2, 1 cubic foot per minute = 0.0004719 m^3/s.

~~M1507.3.6~~ M1507.4 Local exhaust rates. Local exhaust systems shall have the capacity to exhaust the minimum air flow rate in accordance with Table ~~M1507.3.6~~ M1507.4. Fans required by this section shall be provided with controls that enable manual override, such as an on and off switch. Fan controls shall be provided with ready access from the room served by the fan.

TABLE ~~M1507.3.6~~ M1507.4
MINIMUM LOCAL EXHAUST RATES

~~**M1507.3.4 Ventilation quality adjustment** The required whole house ventilation rate from Section M1507.3.3 shall be adjusted by the system coefficient in Table 1507.3.4 based on the system type using Equation 15-2.~~

~~$Q_v = Q_r \times C_{system}$ (Equation 15-2)~~
~~where:~~
~~Q_r = ventilation rate in cubic feet per minute from Equation 15-1 or Table 1507.3.3~~
~~C_{system} = system coefficient from Table 1507.3.4~~

~~**M1507.3.5 Intermittent operation** Systems controlled to operate intermittently shall operate for not less than one hour in each four hour period. The ventilation rate provided by systems controlled to operate intermittently shall be computed as the average ventilaton provided including both times of operation and non-operation.~~

~~**M1507.3.4**~~

~~**SYSTEM TYPE**~~	~~**DISTRIBUTED**[a]~~		~~**NOT DISTRIBUTED**[a]~~	
	~~**MIXED**[b]~~	~~**NOT MIXED**[b]~~	~~**MIXED**[b]~~	~~**NOT MIXED**[b]~~
~~Balanced[c]~~	~~0.75~~	~~1.0~~	~~1.0~~	~~1.25~~
~~Not Balanced[c]~~	~~1.0~~	~~1.25~~	~~1.25~~	~~1.5~~

~~a. "Distributed" shall apply where outdoor ventilation air is supplied directly to each bedroom and the largest common area; otherwise "not distributed" shall apply.~~
~~b. " Mixed" shall apply where not less than 70% of the whole building air volume is recirculated each hour by one or more mechanical systems, otherwise "not mixed" shall apply. Where a central heating or cooling air handler fan is used to provide the mixing, the design heating or cooling airflow rate shall be used to determine the operation time setting required.~~
~~c. "Balanced" shall apply where two or more fans simultaneously supply outdoor air and exhaust air at approximately the same rate; otherwise "not balanced" shall apply. Where outdoor air is supplied by a central forced air system, "balanced" shall apply only where the fan for such system operates simultaneously with the exhaust fan(s) .~~

Commenter's Reason: If approved as submitted, RM-24 will have the effect of radically affecting the ventilation rates and systems specified for whole-house mechanical ventilation and introducing requirements that go beyond ANSI/ASHRAE 62.2, *Ventilation and Acceptable Indoor Air Quality in Residential Buildings*. The most contentious components of this proposal are in Section M1507.3.4. Approval of this comment would remove the contentious sections of RM-24, which were recently disapproved by the ANSI/ASHRAE 62.2 committee. This comment would retain the elements of the original proposal that serve as beneficial clean-up of the language in M1507, would clarify that local exhaust systems are not required to be a of component whole-house mechanical ventilation systems, and would also reword some confusing language that the proposal introduced regarding calculation of continuous and intermittent ventilation rates.

Earlier this year, ASHRAE 62.2 deliberated multiple proposals to differentiate between the ventilation rates of distributed and nondistributed, balanced and non-balanced, and mixed versus non-mixed ventilation systems. In June, the committee voted unanimously to approve a proposal that would differentiate between balanced and non-balanced ventilation, as there is wide consensus that this makes a difference in overall ventilation effectiveness. However, the committee rejected a proposal to differentiate between distributed and nondistributed as well as mixed

versus non-mixed - largely because the research has come to very different conclusions on these topics.

RM-24 should not be approved without modification for the following reasons:

1. Approval of the original proposal would reclassify local exhaust systems as part of the whole-house mechanical ventilation system. This is not how these systems are classified by industry or within ANSI/ASHRAE 62.2 and could cause great confusion for specifiers, installers, and inspectors related to requirements.
2. ANSI/ASHRAE 62.2 deliberated and ultimately disapproved a similar proposal earlier this summer. Approval of RM-24 as submitted would result in a significant departure from the consensus standard.
3. RM-24 requires the most common ventilation systems, which are non-distributed and non-balanced, to increase their ventilation rate by 50%. This will result in a cost and energy penalty, potentially requiring higher cfm fans and increasing the energy use required to condition the ventilation air. It can also increase the risk of depressurization in dwelling units that continue to be built tighter. And, increasing ventilation rates can be expected to increase the humidity load in most dwelling units during shoulder season and summer months, which could impact occupant comfort, building durability, and indoor air quality.
4. This proposal's rationale notes that increasing ventilation rates can greatly increase humidity loads with negative consequences such as mold; however, it goes on to increase ventilation rates by as much as 50% for the most common systems.
5. This proposal heavily favors central fan integrated systems versus exhaust systems. Besides the fact that CFI systems typically use much more energy than exhaust-only systems, CFI systems can actually introduce more pollutants into a space during their operation than alternative systems, depending on duct leakage levels, duct location (i.e., attics, crawlspaces, garages), and infiltration pathways.
6. Research is split on whether or not it makes sense to mix the air within a house. The answer is, "it depends". Factors like the location of pollutants, the location of occupants, and the type of ventilation system all play a significant role in whether distribution is helpful or harmful. For example, studies have shown that kitchens can contain the most concentrated source of harmful pollutants within a house. The best response is NOT to mix air from kitchens, but to instead exhaust from the kitchen and avoid mixing.
7. Distribution of ventilation air is not always the most beneficial configuration. Benefits of distribution depend on occupancy patterns. For example, a professional couple that works during the day and is home for 10 hours, 8 of which are spent in the master bedroom, may want their ventilation air concentrated in the bedroom to get the maximum benefit out of their system.

RM24-15

RM25-15
M1507.3.2

Proposed Change as Submitted

Proponent : Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Residential Code

Revise as follows:

M1507.3.2 System controls. The whole-house mechanical ventilation system shall be provided with controls that enable manual override. Such controls shall be provided with text or a symbol that indicates the control's function.

Reason:
Tight homes are being outfitted with code-mandated whole-house mechanical ventilation systems. These systems are often simply a bathroom exhaust fan expected to run continuously. The problem is that without a label indicating the system's function, homeowners have no idea of the purpose of these systems and are likely to turn them off – thereby increasing the rate of accumulation of harmful indoor pollutants without their knowledge. At a minimum, these systems should be labeled to indicate that they are different than a typical bath fan.

Cost Impact: Will increase the cost of construction
This proposal is expected to have minimal cost impacts, as it simply involves labeling equipment for its intended purpose. This label could either be supplied from manufacturers (incremental cost would probably be <$0.10) or field-applied.

RM25-15 : M1507.3.2-MOORE4894

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal won't stop homeowners from shutting off the systems. It is not clear what is required to indicate control function.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Mike Moore, Newport Ventures, representing Broan-NuTone (mmoore@newportventures.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

M1507.3.2 System controls. The whole-house mechanical ventilation system shall be provided with controls that enable manual override. Such controls shall be ~~provided~~ labeled with text or a symbol that indicates the ~~control~~ system's function.

Commenter's Reason: Without requiring a label of some sort for the whole house mechanical system, there may be no way for a code official, contractor, or homeowner to know what system in the dwelling unit is supposed to serve this function, especially in the case of an exhaust-only system that otherwise might be mistaken for a typical bath fan. Requiring a label is crucial to facilitate a code official's inspection and approval of the system. Additionally, the homeowner needs this information at a minimum to ensure that they do not unintentionally disable their whole-house ventilation system.

A similar proposal was overwhelmingly approved by the IMC committee in Memphis.

RM25-15

RM26-15

M1507.3.3, Chapter 44

Proposed Change as Submitted

Proponent : Robby Schwarz, EnergyLogic, Inc., representing EnergyLogic, Inc. (robby@nrglogic.com)

2015 International Residential Code

Revise as follows:

M1507.3.3 Mechanical ventilation rate. The whole-house mechanical ventilation system shall provide outdoor air at a continuous rate ~~of not less than that~~ as determined in accordance with Table M1507.3.3(1) or in accordance with Equation 15-1.

Equation 15-1
Ventilation rate =(0.01 CFM x total square foot area of house) + [(number of bedrooms +1) x 7.5 CFM]

> **Exception:** The whole-house mechanical ventilation system is permitted to operate intermittently where the system has controls that enable operation for not less than 25-percent of each 4-hour segment and the ventilation rate prescribed in Table M1507.3.3(1) is multiplied by the factor determined in accordance with Table M1507.3.3(2).

Add new standard(s) as follows:
ASHRAE 62.2 - 2010 Ventilation and Acceptable Indoor Air Quaility in Low-Rise Residential Buildings

Reason: Many Builders and Designers would like to be more precise in the specification of the air that is utilized to ventilate a home. The table is good to ensure that ventilation is occurring in a home and for a quick guide for the quantity of air that is needed for whole house mechanical ventilation, but the formula is more precise especially for homes that are on the small side in the floor area chart.

M1507.3.3 Mechanical ventilation rate. The whole-house mechanical ventilation system shall provide outdoor air at a continuous rate of not less than that determined in accordance with Table M1507.3.3(1).

Exception: The whole-house mechanical ventilation system is permitted to operate intermittently where the system has controls that enable operation for not less than 25-percent of each 4-hour segment and the ventilation rate prescribed in Table M1507.3.3(1) is multiplied by the factor determined in accordance with Table M1507.3.3(2).

TABLE M1507.3.3(1)
CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS

DWELLING UNIT FLOOR AREA (square feet)	NUMBER OF BEDROOMS				
	0 – 1	2 – 3	4 – 5	6 – 7	> 7
	Airflow in CFM				
< 1,500	30	45	60	75	90
1,501 – 3,000	45	60	75	90	105
3,001 – 4,500	60	75	90	105	120
4,501 – 6,000	75	90	105	120	135
6,001 – 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

For SI: 1 square foot = 0.0929 m^2, 1 cubic foot per minute = 0.0004719 m^3/s.

TABLE M1507.3.3(2)
INTERMITTENT WHOLE-HOUSE MECHANICAL VENTILATION RATE FACTORS[a, b]

RUN-TIME PERCENTAGE IN EACH 4-HOUR SEGMENT	25%	33%	50%	66%	75%	100%
Factor[a]	4	3	2	1.5	1.3	1.0

a. For ventilation system run time values between those given, the factors are permitted to be determined by interpolation.
b. Extrapolation beyond the table is prohibited.

M1507.3.3 Mechanical ventilation rate. The whole house mechanical ventilation system shall provide outdoor air at a continuous ~~rate of not less than that~~as determined in accordance with Table M1507.3.3(1) or the ASHRAE 62.2 formula (0.01 CFM x total sqft of house) + ((number of bedrooms +1) x 7.5CFM) .

Rational Statement:

Many Builders and Designers would like to be more precise in the specification of the air that is utilized to ventilate a home. The table is good to ensure that ventilation is occurring in a home and for a quick guide for the quantity of air that is needed for whole house mechanical ventilation, but the formula is more precise especially for homes that are on the small side in the floor area chart.

TABLE M1507.3.3(1)

CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS

DWELLING UNIT FLOOR AREA (square feet)	NUMBER OF BEDROOMS				
	0 – 1	2 – 3	4 – 5	6 – 7	> 7
	Airflow in CFM				
< 1,500	30	45	60	75	90
1,501 – 3,000	45	60	75	90	105
3,001 – 4,500	60	75	90	105	120
4,501 – 6,000	75	90	105	120	135
6,001 – 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

- Ventilation can't be greater than what is calculated by formula

Fan flow (CFM) = 0.01 CFM x your floor area + 7.5 x (your number of bedrooms + 1)

- For a 1,510 square foot 4-bedroom home,

(0.01 X 1510) + (7.5 times 5)

(15.1) + (37.5)

Formula Result: 52.6 CFM

Chart Result: 75 CFM

Cost Impact: Will not increase the cost of construction
No cost increase. Possible cost reductions by using more accurate ventilation requirements

Analysis: A review of the standard proposed for inclusion in the code, ASHRAE 62.2, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

RM26-15 : M1507.3.3-SCHWARZ4944

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Approval was based on the proponent's published reason statements.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Alisa McMahon, self, representing self (mcmahon.gbac@cox.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

M1507.3.3 Mechanical ventilation rate. The whole-house mechanical ventilation system shall provide outdoor air at a continuous rate as determined in accordance with Table M1507.3.3(1) or in accordance with Equation 15-1.

Equation 15-1
Ventilation rate =(0.01 CFM x total square foot area of house) + [(number of bedrooms +1) x 7.5 CFM]

> **Exception:** The whole-house mechanical ventilation system is permitted to operate intermittently where the system has controls that ~~enable operation~~ operate the system for not less than 25-percent of each 4-hour segment and the ventilation rate prescribed in Table M1507.3.3(1) is multiplied by the factor determined in accordance with Table M1507.3.3(2).

TABLE M1507.3.3
CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS

~~DWELLING UNIT FLOOR AREA (square feet)~~	~~NUMBER OF BEDROOMS~~				
	~~0 – 1~~	~~2 – 3~~	~~4 – 5~~	~~6 – 7~~	~~> 7~~
	~~Airflow in CFM~~				
–	~~30~~	~~45~~	~~60~~	~~75~~	~~90~~
~~1,501 – 3,000~~	~~45~~	~~60~~	~~75~~	~~90~~	~~105~~
~~3,001 – 4,500~~	~~60~~	~~75~~	~~90~~	~~105~~	~~120~~
~~4,501 – 6,000~~	~~75~~	~~90~~	~~105~~	~~120~~	~~135~~
~~6,001 – 7,500~~	~~90~~	~~105~~	~~120~~	~~135~~	~~150~~
~~> 7,500~~	~~105~~	~~120~~	~~135~~	~~150~~	~~165~~

~~For SI: 1 square foot = 0.0929 m^2, 1 cubic foot per minute = 0.0004719 m^3/s.~~

TABLE M1507.3.3(1)
CONTINOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS

DWELLING UNIT FLOOR AREA (square feet)	NUMBER OF BEDROOMS				
	1	2	3	4	5
	Airflow in CFM				
<500	20	28	35	43	50
501-1,000	25	33	40	48	55
1,001-1,500	30	38	45	53	60
1,501-2,000	35	43	50	58	65
2,001-2,500	40	48	55	63	70
2,501-3,000	45	53	60	68	75
3,001-3,500	50	58	65	73	80
3,501-4,000	55	63	70	78	85
4,001-4,500	60	68	75	83	90
4,501-5,000	65	73	80	88	95

For SI: 1 square foot = 0.0929 m^2, 1 cubic foot per minute = 0.0004719 m^3/s.

Commenter's Reason: Problems with original TABLE M1507.3.3(1):
Increments are too large (1500 square feet & 2 bedrooms).

Airflows are calculated using the maximum floor area and largest number of bedrooms in each range.

Both conditions result in higher ventilation air requirements than those calculated with Equation 15-1.

Proposed TABLE M1507.3.3(1):

Increments are reduced to 500 square feet and 1 bedroom.

This modification yields results more similar to Equation 15-1 and overall lower

ventilation air requirements.

Equation 15-1 can be used for buildings over 5,000 square feet and/or with more than 5 bedrooms.

In addition, the commenter's language clarifies the intent of the original code with respect to intermittent operation. The system must operate one hour out of four as opposed to being enabled to operate.

Examples:

Please see dashed line boxes in the tables below. In the original Table M1507.3.3(1), the ventilation air requirement is 90 CFM for buildings from 3,001 to 4,500 square feet with four to five bedrooms. In the proposed Table M1507.3.3(1), the ventilation air requirement for the same buildings ranges from 73 CFM to 90 CFM.

In a 3001 sq ft / 4 bedroom home, the required ventilation air requirement (CFM) is:

original Table M1507.3.3(1)	90
proposed Table M1507.3.3(1)	73
Equation 15-1	68

In a 3500 sq ft / 4 bedroom home, the required ventilation air requirement (CFM) is:

original Table M1507.3.3(1)	90
proposed Table M1507.3.3(1)	73
Equation 15-1	73

Example: 3001 sq ft - 4 bedroom

TABLE M1507.3.3(1) ORIGINAL					
floor area	bedrooms				
sq ft	0-1	2-3	4-5	6-7	>7
<1500	30	45	60	75	90
1501-3000	45	60	75	90	105
3001-4500	60	75	90	105	120
4501-6000	75	90	105	120	135
6001-7500	90	105	120	135	150
>7500	105	120	135	150	165

TABLE M1507.3.3(1) PROPOSED					
floor area	bedrooms				
sq ft	1	2	3	4	5
<500	20	28	35	43	50
501-1000	25	33	40	48	55
1001-1500	30	38	45	53	60
1501-2000	35	43	50	58	65
2001-2500	40	48	55	63	70
2501-3000	45	53	60	68	75
3001-3500	50	58	65	73	80
3501-4000	55	63	70	78	85
4001-4500	60	68	75	83	90
4501-5000	65	73	80	88	95

Equation 15-1

Ventilation rate = (0.01 CFM x total square foot area of house) + [(number of bedrooms +1) x 7.5 CFM]

Ventilation rate = 0.01 x 3001 + 7.5 x (4 + 1) = 68 CFM

In a 4500 sq ft / 5 bedroom home, the required CFM is:

original Table M1507.3.3(1) 90

proposed Table M1507.3.3(1) 90

Equation 15-1 90

Example: 3500 sq ft - 4 bedroom

TABLE M1507.3.3(1) ORIGINAL					
floor area	bedrooms				
sq ft	0-1	2-3	4-5	6-7	>7
<1500	30	45	60	75	90
1501-3000	45	60	75	90	105
3001-4500	60	75	90	105	120
4501-6000	75	90	105	120	135
6001-7500	90	105	120	135	150
>7500	105	120	135	150	165

TABLE M1507.3.3(1) PROPOSED					
floor area	bedrooms				
sq ft	1	2	3	4	5
<500	20	28	35	43	50
501-1000	25	33	40	48	55
1001-1500	30	38	45	53	60
1501-2000	35	43	50	58	65
2001-2500	40	48	55	63	70
2501-3000	45	53	60	68	75
3001-3500	50	58	65	73	80
3501-4000	55	63	70	78	85
4001-4500	60	68	75	83	90
4501-5000	65	73	80	88	95

Equation 15-1

Ventilation rate = (0.01 CFM x total square foot area of house) + [(number of bedrooms +1) x 7.5 CFM]

Ventilation rate = 0.01 x 3500 + 7.5 x (4 + 1) = 73 CFM

Bibliography: The airflow requirements in proposed TABLE M1507.3.3(1) are calculated in accordance with ASHRAE 62.2-2010. However, the increments (500 square feet and 1 bedroom) follow ASHRAE 62.2-2013 (TABLE 4.1a). As in ASHRAE 62.2-2013 (TABLE 4.1a), proposed TABLE M1507.3.3(1) tops out at 5,000 square feet and 5 bedrooms.

ASHRAE 62.2-2010 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings

ASHRAE 62.2-2013 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings

RM27-15

M1507.4 (New)

Proposed Change as Submitted

Proponent : Craig Conner, representing self (craig.conner@mac.com)

2015 International Residential Code

Add new text as follows:

M1507.4 Venting and depressurization. Each fuel-fired furnace, boiler and water heater shall comply one or more of the following:

1. It shall be a direct-vent, fan-assisted or power-vented type.
2. Where of the natural draft type, it shall be located in a dwelling unit that has only supply or balanced ventilation systems.
3. It shall be located outside of the dwelling unit's air barrier.
4. It shall be located in a mechanical room and provided with combustion air that is supplied entirely from ducts to the outdoors or from direct openings to the outdoors.

Exceptions:

1. This section shall not apply to dwelling units having a tested air tightness of greater than 3 ACH50.
2. This section shall not apply to dwelling units having depressurization test results that are within the limits specified by an approved depressurization standard.

Reason: This proposal provides clear and practical requirements which limit the types of whole house mechanical ventilation systems which can be installed with naturally vented appliances in order to minimize the potential for back drafting. This proposal addresses the most likely scenarios where back drafting could occur and allows the whole house mechanical ventilation to assist in preventing back drafting rather than becoming a contributing factor. The requirements are consistent with Table RA301.1(1) in informative Appendix RA in the 2015 IECC where recommended depressurization limits in houses are defined. All configurations in the table with depressurization limits less than -5 Pa will no longer be able to use exhaust only whole house ventilation.

Bibliography: (1) Russell, Marion, Max Sherman and Armin Rudd (2005). "Review of Residential Ventilation Technologies." LBNL Report 57730, Ernest Orlando Lawrence Berkeley National Laboratory, Berkeley. California. http://www.buildingscience.com/documents/guides-and-manuals/gm-review-residential-ventilation-technologies

Cost Impact: Will increase the cost of construction
This code change proposal will increase the cost of construction for certain construction configurations. In a house with a naturally vented combustion appliances where exhaust-only ventilation was the preferred method of whole house ventilation, there will be an increase in cost to change to a supply type system. According to a 2005 study(1) the additional cost to go from a single-point exhaust system to a central-fan integrated supply system (without exhaust) will be roughly

$155.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The intent of the proposal is unclear. Would the proposal allow natural draft appliances?

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Craig Conner, representing self (craig.conner@mac.com); Shaunna Mozingo, representing self (smozingo@coloradocode.net) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Residential Code

M1507.4 Venting and depressurizatoin Dwelling units that contain fuel-fired furnaces, fuel-fired boilers, or fuel-fired water heaters shall meet one or more of the following:

1. The dwelling unit shall not have a whole house mechanical ventilation system that is of an exhaust-only type.
2. The tested airtightness of the dwelling unit shall be greater than three ACH50.
3. Natural draft appliances serving the dwelling unit shall be located outside of the conditioned space.

Commenter's Reason: Backdrafting generally requires three things: exhaust ventilation, a tight house, and naturally drafted combustion devices. If one of these is absent, backdrafting is less likely to occur. This proposed change requires that one of the three be absent. It gives the code user the option of deciding which of the three requirements to apply in order to make backdrafting much less likely.
The committee commented that the original code language was too complex. The new version is simpler and clearer.

The committee also questioned if naturally drafted appliances were allowed. As reworded it is clear that naturally drafted appliaces would be allowed if one of the other options for surpressing backdrafting was used.

RM28-15
M1507.4

Proposed Change as Submitted

Proponent : Anthony Floyd, City of Scottsdale, representing City of Scottsdale (afloyd@scottsdaleaz.gov)

2015 International Residential Code

Revise as follows:

M1507.4 Local exhaust ~~rates~~ system. Local exhaust systems shall be designed to have the capacity to exhaust the minimum air flow rate determined in accordance with Table M1507.4. Except where functioning as a component of a whole house ventilation system, exhaust fans shall be controlled by a humidity control. Humidity controls shall be capable of adjustment between a relative humidity range of 50 to 80 percent. A humidity control shall utilize manual or automatic means of adjustment and shall be a separate component or an integral component of the exhaust fan.

Reason: Bathroom exhaust fans are often underutilized by occupants. Properly operated exhaust fans removes moisture and odors thereby improving the functionality of the space and contributing to a healthy and sanitary environment. Unless functioning as a component of a whole house ventilation system, effective moisture and odor removal is achieved by humidity sensor controls. Humidity controls ensure the exhaust system operates when the bathroom is in use and for a period of time after the occupant has left the room.
During a bath or shower, the humidity level in a bathroom can be a perfect breeding ground for mold, mildew and microorganisms that can impact your health. Excess moisture has tremendous potential for damaging a home. It cracks and peels paint, ruins gypsum wallboard, causes exterior paint failure, warps doors and rusts cabinets and fixtures. Without control, it can even cause deterioration of joists and framing. As it condenses on windows, walls, ceilings and cabinets, it attracts dirt. It encourages mildew on tile grout and generally provides an environment for increased bacterial growth.

Depending on the size of the bathroom, an intermittent exhaust fan needs to run at least 20 minutes after each shower to ensure that moisture levels are reduced. Both intermittent and continuous bathroom exhaust systems reduce the risk of mold growth which is a significant health concern in homes. Moisture sensor controlled exhaust fans are far more effective than a timed or manually operated fan or an operable window that is usually left closed during the winter and summer months of the year.

Bibliography: Home Ventilating Institute
- http://www.hvi.org/publications/HowMuchVent.cfm
GreenCodePro/CALGreen - http://greencodepro.com/code-summaries/california-green-building-standards-code/4-506-1-bathroom-exhaust-fans

LEED for Homes Reference Guide, 2008. p. 301-302.

Cost Impact: Will increase the cost of construction
Exhaust fan costs range from $106 for an 80 cfm with humidity sensor control to $251 for an 80 cfm with humidity sensor control, motion sensor, and quiet sound rating. The minimum cost for a roof vent kit with flex duct is $23. Moisture controlled bathroom exhaust fans minimizes the potential for building damage, saving the cost

of making repairs to correct problems that could have been easily avoided.

RM28-15 : M1507.4-FLOYD3605

Public Hearing Results

Committee Action: Approved as Modified

Modification:

M1507.4 Local exhaust system. Local exhaust systems shall be designed to have the capacity to exhaust the minimum air flow rate determined in accordance with Table M1507.4. Except where functioning as a component of a whole house ventilation system, exhaust fans in bathrooms with a shower or bathtub shall be ~~controlled by~~provided with a delay timer or humidity sensor control. ~~Humidity controls shall be capable of adjustment between a relative humidity range of 50 to 80 percent. A humidity control shall utilize manual or automatic means of adjustment and shall be a separate component or an integral component of the exhaust fan.~~

Committee Reason: Approval was based on the proponent's published reason statements. The modification adds a timer option to the humidity controller.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Anthony Floyd, City of Scottsdale, representing City of Scottsdale (afloyd@scottsdaleaz.gov) requests Approve as Modified by Committee.

Commenter's Reason: When provided, bathroom exhaust systems reduce the risk of mold growth which is a significant health concern in homes. They are far more effective at removing moisture and odor than an operable window which is usually left closed during the winter and summer months. During a bath or shower, the humidity level in a bathroom can be a perfect breeding ground for mold, mildew and microorganisms that can impact health. Excess moisture also has tremendous potential for damaging a home. Besides peeling paint, damaging gypsum wallboard, and deteriorating framing, it encourages mildew on tile grout and provides an environment for increased bacterial growth.
Unless operating as a component of a whole house ventilation system, an exhaust fan with a delay timer or humidity sensor is an effective means to remove excessive moisture or odor. Besides saving energy with an automatic shut-off, the exhaust fan continues to run after the occupant leaves the room until the moisture is significantly reduced. Depending on the size of the bathroom, an intermittent exhaust fan needs to run at least 20 minutes after each shower to ensure that moisture levels are reduced. Both intermittent and continuous bathroom exhaust systems reduce the risk of mildew and mold growth which is a sanitary and durability concern in all homes, regardless of climate zone.

A basic delay timer switch costs $15, while a basic humidity sensor switch costs $46. Timer and moisture controlled exhaust fans significantly reduce the possibility of making costly moisture damage repairs to correct problems that is easy to avoid.

Bibliography: Home Ventilating Institute - http://www.hvi.org/publications/HowMuchVent.cfm

Public Comment 2:

Proponent : Alisa McMahon, representing self (mcmahon.gbac@cox.net) requests Approve as Modified by Committee.

Commenter's Reason: see proponent's published reason statement

Public Comment 3:

Proponent : Donald Surrena, representing NAHB (dsurrena@nahb.org) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Residential Code

M1507.4 Local exhaust system. Local exhaust systems shall be designed to have the capacity to exhaust the minimum air flow rate determined in accordance with Table M1507.4. Except where functioning as a component of a whole house ventilation system, exhaust fans in bathrooms with a shower or bathtub shall be provided with a delay timer or humidity sensor control.

> **Exception:** Delay timers and humidity sensor controls are not required in Climate Zones 1B through 6B.

Commenter's Reason: Section 303.4 Mechanical Ventilation requires whole-house mechanical ventilation in accordance with Section M1507.3 if a *dwelling unit* is 5 air changes per hour or less. The energy code does not permit air changes higher than 5, consequently all dwelling units will have whole-house ventilation systems. In dry climate zones the moisture from a bathroom will be distributed throughout the whole house. Dryer climates do not have the same problems that may arise in humid climates. A mandate to install added equipment in all circumstances is not necessary.

Cost Impact: This will reduce the cost of construction.

RM28-15

RM29-15
M1601.1.1

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Residential Code

Revise as follows:

M1601.1.1 Above-ground duct systems. Above-ground *duct systems* shall conform to the following:

1. *Equipment* connected to *duct systems* shall be designed to limit discharge air temperature to not greater than 250°F (121°C).
2. ~~Factory-made~~ Listed factory-made ducts shall ~~be listed and labeled in accordance~~ comply with UL 181~~ and installed in accordance with the manufacturer's instructions~~.
3. Fibrous glass duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards*.
4. Field-fabricated and shop-fabricated metal and flexible duct constructions shall conform to the SMACNA HVAC *Duct Construction Standards—Metal and Flexible* except as allowed by Table M1601.1.1. Galvanized steel shall conform to ASTM A 653.
5. The use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F (52°C) and exposed surfaces are not subject to condensation.
6. *Duct systems* shall be constructed of materials having a flame spread index of not greater than 200.
7. Stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following conditions:
    7.1. These cavities or spaces shall not be used as a plenum for supply air.
8. These cavities or spaces shall not be part of a required fire-resistance-rated assembly.
9. Stud wall cavities shall not convey air from more than one floor level.
10. Stud wall cavities and joist-space plenums shall be isolated from adjacent concealed spaces by tight-fitting fireblocking in accordance with Section R602.8.
11. Stud wall cavities in the outside walls of building envelope assemblies shall not be utilized as air plenums.

Reason: As currently written, Item 2 mandated UL 181. However, many sheet metal manufacturers make duct in their shop. A contractors shop would in essence qualify as a factory. However, contractors do not have listing and labeling of their duct. This section is also in conflict with other items, spectifically Item 3, 4, and 6. This section should simply allow the use of UL 181 duct as opposed to appearing to require compliance.

Cost Impact: Will not increase the cost of construction

This will lower the cost of construction by allowing any viable duct to be used in a dwelling unit.

RM29-15 : M1601.1.1-BALLANCO3972

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The current code text is preferred because it refers to the manufacturer's instructions.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing General Plastics (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

M1601.1.1 Above-ground duct systems. Above-ground *duct systems* shall conform to the following:

1. *Equipment* connected to *duct systems* shall be designed to limit discharge air temperature to not greater than 250°F (121°C).
2. ~~Listed factory made~~ Factory-made ducts shall be installed in accordance with the manufacturer's instructions. Factory-made ducts that are listed shall comply with UL 181.
3. Fibrous glass duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards*.
4. Field-fabricated and shop-fabricated metal and flexible duct constructions shall conform to the SMACNA HVAC *Duct Construction Standards—Metal and Flexible* except as allowed by Table M1601.1.1. Galvanized steel shall conform to ASTM A 653.
5. The use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F (52°C) and exposed surfaces are not subject to condensation.
6. *Duct systems* shall be constructed of materials having a flame spread index of not greater than 200.
7. Stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following conditions:
    7.1. These cavities or spaces shall not be used as a plenum for supply air.
8. These cavities or spaces shall not be part of a required fire-resistance-rated assembly.
9. Stud wall cavities shall not convey air from more than one floor

level.

10. Stud wall cavities and joist-space plenums shall be isolated from adjacent concealed spaces by tight-fitting fireblocking in accordance with Section R602.8.
11. Stud wall cavities in the outside walls of building envelope assemblies shall not be utilized as air plenums.

Commenter's Reason: The Committee was correct to state that installed in accordance with the manufacturer's installation instructions should remain in the section. This modification corrects that oversight. The other corrections is to identify the ducts as those listed as complying with UL 181. Plastic factory made ducts do not comply with UL 181 since these ducts are not within the scope of UL 181.

RM29-15

RM30-15
M1601.1.1

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C. (JBENGINEER@aol.com)

2015 International Residential Code

Revise as follows:

M1601.1.1 Above-ground duct systems. Above-ground *duct systems* shall conform to the following:

1. *Equipment* connected to *duct systems* shall be designed to limit discharge air temperature to not greater than 250°F (121°C).
2. Factory-made ducts shall be listed and labeled in accordance with UL 181 and installed in accordance with the manufacturer's instructions.
3. Fibrous glass duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards*.
4. Field-fabricated and shop-fabricated metal and flexible duct constructions shall conform to the SMACNA HVAC *Duct Construction Standards—Metal and Flexible* except as allowed by Table M1601.1.1. Galvanized steel shall conform to ASTM A 653.
5. The use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F (52°C) and exposed surfaces are not subject to condensation.
6. *Duct systems* shall be constructed of materials having a flame spread index of not greater than 200.
7. Stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following conditions:
    - 7.1. These cavities or spaces shall not be used as a plenum for supply air.
    - 7.2. These cavities or spaces shall not be part of a required fire-resistance-rated assembly.
    - 7.3. Stud wall cavities shall not convey air from more than one floor level.
    - 7.4. Stud wall cavities and joist-space plenums shall be isolated from adjacent concealed spaces by tight-fitting fireblocking in accordance with Section R602.8.
    - 7.5. Stud wall cavities in the outside walls of building envelope assemblies shall not be utilized as air plenums.
8. <u>PVC plastic duct and fitting material shall conform to cell classification 12454-B of ASTM D1248 or ASTM D1784 and the external loading properties of ASTM D2412. The duct temperature for plastic ducts shall not exceed 150° F (66° C).</u>

Reason: The PMGCAC raised a concern last cycle regarding the requirements for plastic duct above ground. The plastic duct being used above ground is the same

duct that is used for underground installations. This change will add the plastic duct requirements to the list of above ground duct systems using the language in Section M1601.1.2 to regulate the material requirement.
Item 6 in this section was originally added to the code during the initial hearings for the IRC when I proposed the inclusion of plastic ducts above ground. The Committee, at that time, thought the text would be more clear by referencing a flame spread of 200 rather than the language proposed for plastic duct. As such, plastic ducts have always been permitted by the IRC for above ground installations. This will simply add more specific requirements for the duct material.

Cost Impact: Will not increase the cost of construction
This change clarifies the requirement for PVC plastic duct and fittings. These are optional materials that may be used for duct construction.

RM30-15 : M1601.1.1-BALLANCO5109

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Approval was based on the proponent's published reason statements.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Michael Blaszkiewicz, SABIC, representing SABIC (michael.blaszkiewicz@sabic-ip.com) requests Disapprove.

Commenter's Reason: Proposal RM30-15 should be disapproved for the following reasons:

1. PVC plastic ducts are "factory-made" using the extrusion process and are not manufactured in the field; therefore, condition #2 (UL 181), already in the code, is applicable.
2. This code change contradicts the ICC Committee formal interpretation (2005) of requirements for above-ground plastic ducts: If the plastic duct meets condition #2 (Class 0 or Class 1) it is allowed; and they note that condition #6 (flame spread index not greater than 200) applies to other components of the duct system, but not to the duct itself.
3. This code change introduces ambiguity into the code. Using requirements for underground PVC plastic ducts and applying them to above-ground ducts will cause confusion. The underground duct flammability requirements are appropriately less stringent than those for above-ground and do not require the duct to meet Class 0 or Class 1. Instead, ASTM D1248 for underground PVC plastic ducts calls for ASTM D635, a small-scale horizontal burn test that is used to screen small parts used in appliances. ASTM D635 in no way compares to the applicable above ground duct large-scale flammability test requirements of condition #2, or even to the duct component requirements of condition #6.
4. Contrary to the proponent's claim that condition #6 originated "to allow plastic ducts above-ground," this less stringent flame spread was originally to address return ducts: "Return ducts, except those portions directly above the heating surface or closer than 2 feet (610 mm) to the heating unit casing,

shall be constructed of materials having a flame-spread rating not greater than 200." (1998 International One- and Two-Family Dwelling Code).

5. This code change specifies PVC as the only plastic material allowed for use in above-ground ducts while meeting less stringent requirements. No evidence was provided for this material-specific exception for PVC plastic in above-ground ducts. Any plastic that meets the appropriate code requirements should be allowed.

Public Comment 2:

Proponent : Jonathan Roberts, representing Underwriters Laboratories (jonathan.roberts@ul.com) requests Disapprove.

Commenter's Reason: The suitability of a plastic air duct should be determined based on the conditions of its use. The standards being proposed are not designed to evaluate all of the conditions that are likely to be encountered in above ground applications.

1. The scope of ASTM D 1248 it indicates "This specification provides for the identification of polyethylene plastics extrusion materials for wire and cable in such a manner that the seller and the purchaser can agree on the acceptability of different commercial lots or shipments.". In other words this is a standard that can be used to determine if shipments or lots of plastic parts meets the buyer's specifications, not whether the products are suitable for use in air duct systems. In addition we cannot determine the significance of the "cell classification 12454-B" referenced in the proposal. We could not find such a reference in the standard, and there is no requirement for a rating to be marked on the product. We have no idea how compliance with this rating will be determined at the job site.
2. Similarly the scope of ASTM D 2412 indicates "This test method covers the determination of load deflection characteristics of plastic pipe under parallel-plate loading." This standard is also not specifically designed to evaluate the conditions that air ducts will see in aboveground installations. It basically evaluates the load deflection and stiffness properties of pipe, but doesn't seem to have pass-fail acceptance criteria for the test, which is confusing. Finally neither standard appears to evaluate the pipes in elevated temperatures, so we are unsure of the technical basis for the claim that they are suitable for use in 150 degree F air ducts.

Requirements are already well established for all above ground factory-made ducts, including plastic, as specified in Item 2 of Section M1601.1.1.

The requirements of UL 181 apply to materials for the fabrication of air duct and air connector systems for use in accordance with the IRC. These systems include preformed lengths of flexible or rigid ducts, materials in the form of boards for field fabrication of lengths of rigid ducts, and preformed flexible air connectors. Tests required by UL 181 include flame penetration, mold growth and humidity, temperature, static load, impact, collapse, leakage, and surface burning characteristics.

RM30-15

RM32-15
M1601.1.1

Proposed Change as Submitted

Proponent : Robby Schwarz, representing EnergyLogic, Inc. (robby@nrglogic.com)

2015 International Residential Code

Revise as follows:

M1601.1.1 Above-ground duct systems. Above-ground *duct systems* shall conform to the following:

1. *Equipment* connected to *duct systems* shall be designed to limit discharge air temperature to not greater than 250°F (121°C).
2. Factory-made ducts shall be listed and labeled in accordance with UL 181 and installed in accordance with the manufacturer's instructions.
3. Fibrous glass duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards*.
4. Field-fabricated and shop-fabricated metal and flexible duct constructions shall conform to the SMACNA HVAC *Duct Construction Standards—Metal and Flexible* except as allowed by Table M1601.1.1. Galvanized steel shall conform to ASTM A 653.
5. ~~The use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F (52°C) and exposed surfaces are not subject to condensation.~~
5. *Duct systems* shall be constructed of materials having a flame spread index of not greater than 200.
6. Stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following conditions:
    - 6.1. These cavities or spaces shall not be used as a plenum for supply or return air.
    - 6.2. These cavities or spaces shall not be part of a required fire-resistance-rated assembly.
    - 6.3. Stud wall cavities shall not convey air from more than one floor level.
    - 6.4. Stud wall cavities and joist-space plenums shall be isolated from adjacent concealed spaces by tight-fitting fireblocking in accordance with Section R602.8.
    - 6.5. Stud wall cavities in the outside walls of building envelope assemblies and the spaces between solid floor joists in any portion of the building shall not be utilized as supply or return air plenums.

Reason: Rational Statement:
Air is a fluid like water is a fluid. Code will not stand for a plumbing system that leaks but allows a minimum level of duct leakage even though the air that is carried through the duct system carries heat, moisture, and pollutants that can be detrimental to the building occupant and the structure. Many have read the language in the last two cycles of the code to mean that both the supply side and the return

side of an HVAC system need to be fully ducted. However the commentary has left a window of opportunity for contractors to continue to utilize building cavities for return air plenums. To be crystal clear, this code change proposal is largely in response to that and is designed to ensure that all HVAC duct systems are fully ducted to ensure life safety, long term durability, cost effectiveness, comfort and efficiency as they are all impacted by air under pressure being forced through un-ducted building cavities. A number of papers have been written about the decrease in efficiency and comfort as well as the increase in building durability issues and cost of ownership associated with air traveling through and out of un-ducted building cavities. Much of this air also is pulled into and out of the building due to the connection of the cavity to the outside. Negative pressure are a significant issue for combustion safety is a home and are more likely to impact atmospherically vented appliances through the leakage associated with building cavities used as returns. For all of these reasons and more all air pushed our pulled by an HVAC blower motor should be contained inside a duct system.

Cost Impact: Will increase the cost of construction
Cost implications are small with this proposal as building cavities need to be enclosed any way so air can flow through them. However this proposal is requiring that return air be enclosed in duct work and there will be a cost associated with that. However, this requirement, as well and the enhanced duct sealing requirements of the IECC, leads builders to the utilization of centralized returns which diminishes the amount of return duct work in the house drastically, maintains comfort and performance of the HVAC system, and is very cost affective.

RM32-15 : M1601.1.1-SCHWARZ4948

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Floor joist cavities should be allowed for conveying return air.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Robby Schwarz, representing EnergyLogic, Inc. (robby@nrglogic.com) requests Approve as Submitted.

Commenter's Reason: The ROCAH indicates that this code change was disapproved because it was the opinion of the committee that floor joist plenums should be allowed to convey return air. Plenums/building cavities should be allowed to convey return air only if the return air is being conveyed inside of a hard duct which is located within the plenum or building cavity.
Right now there is a conflict between codes as the IECC clearly says in section R403.3.5 Building Cavities (Mandatory) "Building framing cavities shall not be used as ducts or plenums.

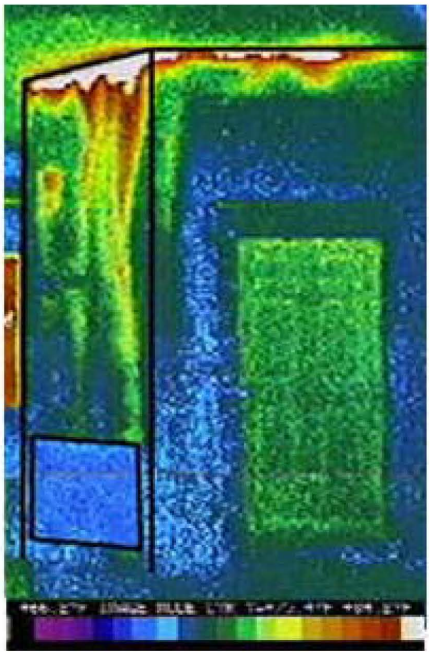
"Besides the Building Science rational spelled out in the original reason statement demonstrating building durability, efficiency, and life safety issues associated with pressure imbalances associated with building framing plenums being used as duct work, the current code language addressed by this proposals ensures that the intent of the code will be met."…to provide a reasonable level of safety, health, property protection and public welfare…"

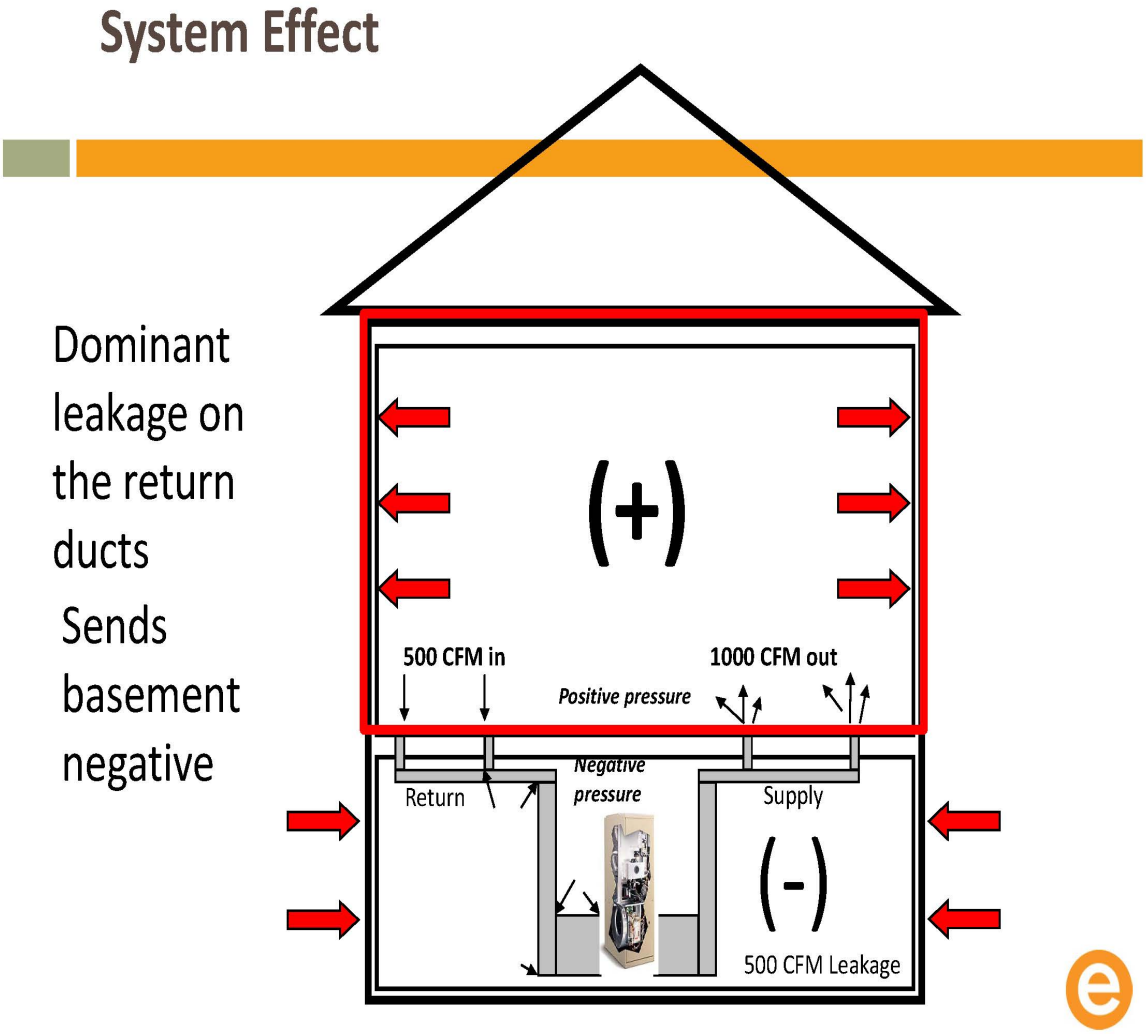
Combustion safety caused by uninhibited negative pressures, building durability

caused by returning warm moist air through random building cavities, indoor air quality concerns caused by pulling air from attics, crawl spaces, and other areas unknown, clearly demonstrate that both the supply side and the return side of an HVAC system should be fully ducted when placed in a plenum/building cavity, so that we can gain control and predictability of the air flowing through our buildings.

R403.2.3 Building cavities (Mandatory)

Building framing cavities shall not be used as ducts or plenums





Bibliography:
https://www.energycodes.gov/sites/default/files/documents/cn_open_spaces_as_return-air_options.pdf

- Building Energy Resource Center "Open Spaces as Return-Air Options - Code Notes" Building cavities are leaky

http://www.nachi.org/building-cavities-supply-return-ducts.htm

- **Building Cavities Used as Supply or Return Ducts by Nick Gromicko and Ben Gromicko**

http://search.proquest.com/openview/f7f3b637f577d99e7addbb96947394a8/1?pq-origsite=gscholar

- **Building cavities used as ducts: Air leakage characteristics and impacts in light commercial**

buildings

Cummings, James B; Withers, Charles R, Jr. **ASHRAE Transactions** 104 (1998): 743.

http://www.fsec.ucf.edu/en/publications/html/FSEC-CR-1668-98/

- **Building Cavities Used as Ducts: Air Leakage Characteristics and Impacts in Light Commercial Buildings by James B. Cummings and Charles R. Withers** *Florida Solar Energy Center (FSEC)*

Built Wrong from the Start By Joe Lstiburek page 3

RM32-15

RM36-15
M1601.4.1

Proposed Change as Submitted

Proponent : Donald Surrena, National Association of Home Builders, representing National Association of Home Builders (dsurrena@nahb.org)

2015 International Residential Code

Revise as follows:

M1601.4.1 Joints, seams and connections. Longitudinal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA HVAC *Duct Construction Standards—Metal and Flexible* and NAIMA *Fibrous Glass Duct Construction Standards*. Joints, longitudinal and transverse seams, and connections in ductwork shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants or tapes. Tapes and mastics used to seal fibrous glass ductwork shall be *listed* and *labeled* in accordance with UL 181A and shall be marked "181A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape.

Tapes and mastics used to seal metallic and flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181 B-FX" for pressure-sensitive tape or "181 BM" for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked 181B-C. Crimp joints for round metallic ducts shall have a contact lap of not less than 1 inch (25 mm) and shall be mechanically fastened by means of not less than three sheet-metal screws or rivets equally spaced around the joint.

Closure systems used to seal all ductwork shall be installed in accordance with the manufacturers' instructions.

Exceptions:

1. Spray polyurethane foam shall be permitted to be applied without additional joint seals.
2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.
3. For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams and locking-type joints and seams of other than the snap-lock and button-lock types <u>that are located outside of conditioned spaces</u>.

Reason: This proposal will reduce construction cost and still reduce energy loss that would occur due to duct leakage outside conditioned space. Low pressure longitudinal seam duct leakage is very limited and the small amount of leakage within conditioned space is still useful energy.

Cost Impact: Will not increase the cost of construction
Cost decrease of up to $314 for an average house according to research conducted by Home Innovation Research Labs.

RM36-15 : M1601.4.1-SURRENA5018

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Approval was based on the proponent's published reason statements.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Craig Drumheller, representing National Association of Home Builders (CDrumheller@nahb.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

M1601.4.1 Joints, seams and connections. Longitudinal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA HVAC *Duct Construction Standards—Metal and Flexible* and NAIMA *Fibrous Glass Duct Construction Standards*. Joints, longitudinal and transverse seams, and connections in ductwork shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants or tapes. Tapes and mastics used to seal fibrous glass ductwork shall be *listed* and *labeled* in accordance with UL 181A and shall be marked "181A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape.

Tapes and mastics used to seal metallic and flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181 B-FX" for pressure-sensitive tape or "181 BM" for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked 181B-C. Crimp joints for round metallic ducts shall have a contact lap of not less than 1 inch (25 mm) and shall be mechanically fastened by means of not less than three sheet-metal screws or rivets equally spaced around the joint.

Closure systems used to seal all ductwork shall be installed in accordance with the manufacturers' instructions.

Exceptions:

1. Spray polyurethane foam shall be permitted to be applied without additional joint seals.
2. Where a duct connection is made that is partially

inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.

3. For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for locking type longitudinal joints and seams located within conditioned space ~~continuously welded joints and seams and locking type joints and seams of other than the snap-lock and button-lock types that are located outside of conditioned spaces~~.

Commenter's Reason: This proposal was approved at the Committee Action Hearings. The committee recognized that the cost to seal the longitudinal joints in conditioned space outweighed the benefit for this requirement; however, there was a concern that the modification contributed to the confusion of an already unclear exception.
The public comment modification does not change the meaning or intent of the original proposal. The change improves the language by removing exceptions to exceptions and also removing a redundant reference to "welded seams".

As modified, this proposal will still reduce the cost of construction up to $314 for an average house.

RM36-15

RM37-15
M1602.2

Proposed Change as Submitted

Proponent : Guy McMann, Jefferson County Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Residential Code

Revise as follows:

M1602.2 Return air openings. Return air openings for heating, ventilation and air conditioning systems shall comply with all of the following:

1. Openings shall not be located less than 10 feet (3048 mm) measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space.
2. The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space.
3. Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturers' installation instructions, Manual D or the design of the registered design professional.
4. Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, mechanical room, boiler room, furnace room or unconditioned attic.

   Exceptions:

   1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen only, and are located not less than 10 feet (3048 mm) from the cooking appliances.
   2. Dedicated forced-air systems serving only the garage shall not be prohibited from obtaining return air from the garage.
5. Taking return air from an unconditioned crawl space shall not be accomplished through a direct connection to the return side of a forced-air furnace. Transfer openings in the crawl space enclosure shall not be prohibited.
6. Return air from one dwelling unit shall not be discharged into another dwelling unit.
7. <u>Return air shall not be taken from indoor swimming pool enclosures and associated deck areas except where such space is dehumidified,</u>

Reason: It is not desirable to pull return air from swimming pool areas due to the affects it would have on the system from humidity and chemical odors associated with such spaces. A dedicated system would be required or a combination of supply and exhaust. This scenario is consistent with the same dwelling built under the IMC.

Cost Impact: Will not increase the cost of construction
Generally speaking this proposal is will not cause an increase is cost. If

dehumidificaton is chosen then there could be an increase in cost.

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Approval was based on the proponent's published reason statement.

Assembly Motion: Disapprove
Online Vote Results: Failed
Support: 34.59% (55) Oppose: 65.41% (104)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Guy McMann, Jefferson County Co., representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

M1602.2 Return air openings. Return air openings for heating, ventilation and air conditioning systems shall comply with all of the following:

1. Openings shall not be located less than 10 feet (3048 mm) measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space.
2. The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space.
3. Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturers' installation instructions, Manual D or the design of the registered design professional.
4. Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, mechanical room, boiler room, furnace room or unconditioned attic.

   Exceptions:

   1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen only, and are located not less than 10 feet (3048 mm) from the cooking appliances.
   2. Dedicated forced-air systems serving only the garage shall not be prohibited from obtaining return air from the garage.

5. Taking return air from an unconditioned crawl space shall not be accomplished through a direct connection to the return side of a forced-air furnace. Transfer openings in the crawl space enclosure shall not be prohibited.
6. Return air from one dwelling unit shall not be discharged into another dwelling unit.
7. ~~Return~~ For other than dedicated HVAC systems, return air shall not be taken from indoor swimming pool enclosures and associated deck areas except where the air in such ~~space~~ spaces is dehumidified,

Commenter's Reason: The committees concern that the original language seemed to exclude dedicated systems was valid. This correction clearly excludes dedicated systems from the requirements of untreated recirculation to other spaces.

RM37-15

RM38-15

M2005.1, M2005.2, M2005.2.1

Proposed Change as Submitted

Proponent : Guy McMann, Jefferson County, Colorado, representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Residential Code

Revise as follows:

M2005.1 General. Water heaters shall be installed in accordance with Chapter 28, the manufacturer's instructions and the requirements of this code. ~~Water heaters installed in an attic shall comply with the requirements of Section M1305.1.3.~~ Gas-fired water heaters shall comply with the requirements in Chapter 24. Domestic electric water heaters shall comply with UL 174. Oiled-fired water heaters shall comply with UL 732. Thermal solar water heaters shall comply with Chapter 23 and UL 174. Solid fuel-fired water heaters shall comply with UL 2523.

M2005.2 Prohibited locations. Fuel-fired water heaters shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or a space that opens only to such room or spaces.

Exceptions:

1. The water heater is a direct- vent appliance installed in accordance with the terms of its listing and the manufacturer's installation instructions.
2. Where the water heater is installed in a room ~~used as a storage closet. Water heaters located in~~ or space that opens only into a bedroom or bathroom, the room or space shall be ~~installed in~~ provided with a ~~sealed enclosure so that~~ *solid weather stripped door equipped with an approved self-closing device. All combustion air* ~~will not~~ shall be taken directly from the ~~living space~~ outdoors. ~~Installation of direct-vent water heaters within an enclosure is not required.~~

M2005.2.1 Water heater access. Access to water heaters that are located in an *attic* or underfloor crawl space ~~is permitted to~~ shall be ~~through a closet located in a sleeping room or bathroom where *ventilation* of those spaces is~~ in accordance with ~~this code.~~ Section M1305.

Reason: This section lacks some general informatoin and is incomplete. It is also in need of a little cleanup. There are no new requirements.

Cost Impact: Will not increase the cost of construction
This proposal is strictly editorial in nature and will not cause an increase is cost.

RM38-15 : M2005.1-MCMANN3692

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The "space" referred to in the proposal could be very large.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Guy McMann, Jefferson County Co., representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

M2005.2 Prohibited locations. Fuel-fired water heaters shall not be located in ~~sleeping rooms, bathrooms, toilet rooms, storage closets~~ or ~~a space that opens only to such room~~ obtain combustion air from any of the following rooms or spaces:

1. Sleeping rooms.
2. Bathrooms.
3. Toilet rooms.
4. Storage closets.

Exceptions:

1. ~~The~~ Direct-vent water ~~heater~~ heaters that obtain all combustion air directly from the outdoors
2. Solid fuel-fired water heaters, provided that combuston air is ~~a direct- vent appliance installed~~ provided in accordance with the ~~terms of its listing and the manufacturer's~~ manufacturer'-s installation instructions and this section..
3. ~~Where the water heater is~~ Water heaters installed in a ~~room or space that opens only into a bedroom or bathroom,~~ dedicated enclosure in which all combustion air is taken directly from the ~~room or space~~ outdoors. Access to such enclosure shall be ~~provided with~~ through a weather-stripped solid ~~weather stripped~~ door that is equipped with an approved self-closing device. ~~All combustion air shall be taken directly from the outdoors.~~

M2005.2.1 Water heater access. Access to water heaters that are located in an *attic* or underfloor crawl space shall be in accordance with Section M1305.

Commenter's Reason: The committees consern that a space may be very large is unclear. The proposal has been modified to reflect the same language used in the IMC for water heater installations and prohibited locations. This will complete this section in an easy to read format. There are no new requirements. # 2 was left in place to cover any oil fired water heaters that may exsist.

RM38-15

RM40-15

Table M2101.1, M2103.3

Proposed Change as Submitted

Proponent : Curtis Dady, Viega, LLC, representing Viega, LLC (curtis.dady@viega.us)

2015 International Residential Code

Revise as follows:

TABLE M2101.1
HYDRONIC PIPING AND FITTING MATERIALS

MATERIAL	USE CODE[a]	STANDARD[b]	JOINTS	NOTES
Copper tubing (type K, L or M)	1, 2	ASTM B 75, B 88, B 251, B 306, ASME B16.51	Brazed, soldered, press-connected and flared mechanical fittings	Joints embedded in concrete

(Portions of table not shown remain unchanged)

For SI: °C = [(°F)-32]/1.8.

a. Use code:

1. Above ground.
2. Embedded in radiant systems.
3. Temperatures below 180°F only.
4. Low temperature (below 130°F) applications only.
5. Temperatures below 160°F only.

b. Standards as listed in Chapter 44.

M2103.3 Piping joints. Copper and copper alloy systems shall be soldered , brazed, or press-connected. Soldering shall be in accordance with ASTM B 828. Fluxes for soldering shall be in accordance with ASTM B 813. Brazing fluxes shall be in accordance with AWS A5.31. Press-connect shall be in accordance with ASME B16.51. Piping joints that are embedded shall be installed in accordance with the following requirements:

1. Steel pipe joints shall be welded.
2. Copper tubing shall be joined by brazing complying with Section P3003.6.1.
3. Polybutylene pipe and tubing joints shall be installed with socket-type heat-fused polybutylene fittings.

4. CPVC tubing shall be joined using solvent cement joints.
5. Polypropylene pipe and tubing joints shall be installed with socket-type heat-fused polypropylene fittings.
6. Cross-linked polyethylene (PEX) tubing shall be joined using cold expansion, insert or compression fittings.
7. Raised temperature polyethylene (PE-RT) tubing shall be joined using insert or compression fittings.

Reason: ASME B16.51 "Copper and Copper Alloy Press-Connect Pressure Fittings" is included in IMC table 1202.5 HYDRONIC PIPE FITTINGS and these joints are included in sections 1203.8 and 1203.8.3.

Cost Impact: Will not increase the cost of construction
Addition of option, not requirement.

RM40-15 : M2101.1-DADY3675

Public Hearing Results

Committee Action: Approved as Modified

Modification:

TABLE M2101.1
HYDRONIC PIPING AND FITTING MATERIALS

(No change to Table)

Committee Reason: Approval is based on the proponent's published reason statements. The modification corrects the the table title.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

M2103.3 Piping joints. Copper and copper alloy systems shall be soldered, brazed, or press-connected. Soldering shall be in accordance with ASTM B 828. Fluxes for soldering shall be in accordance with ASTM B 813. Brazing fluxes shall be in accordance with AWS A5.31. Press-connect joints shall be made in accordance with ~~ASME B16.51~~ the manufacturer's installation instructions. Piping joints that are embedded shall be installed in accordance with the following requirements:

1. Steel pipe joints shall be welded.
2. Copper tubing shall be joined by brazing complying with Section P3003.6.1.
3. Polybutylene pipe and tubing joints shall be installed with socket-type heat-fused polybutylene fittings.
4. CPVC tubing shall be joined using solvent cement joints.
5. Polypropylene pipe and tubing joints shall be installed with socket-type heat-fused polypropylene fittings.
6. Cross-linked polyethylene (PEX) tubing shall be joined using cold expansion, insert or compression fittings.
7. Raised temperature polyethylene (PE-RT) tubing shall be joined using insert or compression fittings.

Commenter's Reason: ASME B16.51 contains no requirements for the installation of press-connect fittings. This section regulates installation, not fitting standards. The fitting manufacturer is required to provide the installation instructions for press connect fittings. It is inappropriate to reference the standard when no installation requirements are found in the standard.

RM40-15

RM53-15

M2301.3.3 (New)

Proposed Change as Submitted

Proponent : Robby Schwarz, EnergyLogic, Inc., representing EnergyLogic, Inc. (robby@nrglogic.com)

2015 International Residential Code

Add new text as follows:

M2301.3.3 Labeling of solar energy systems The solar energy installer shall provide a certificate or label that lists the following information relative to the installed solar system: Such certificate or label shall be posted near the inverter, electrical distribution panel, or other conspicuous location.

1. The date that the system was installed.
2. The name of the installation company.
3. The system type.
4. The orientation of the arrays and collectors.
5. The tilt in degrees of the arrays and collectors.
6. The square foot area of the arrays and collectors.
7. The number of panels in the arrays.
8. The peak power production of the arrays and collectors stated in watts.
9. The inverter efficiency of the arrays and collectors.
10. The loop type of the arrays and collectors.
11. The type of the arrays and collectors.
12. The storage volume of the system in cubic feet or gallons.

Reason: Rational Statement:
Just like the requirement to provide an insulation certificate to fully document the R-values of the insulation in each assembly of the home ensures that the code official and home owner knows and understand what has been installed in the home, this proposal ensures that everyone involved knows and understands the PV or solar thermal system that has been installed. In addition, since the requirement is in label form it is hoped that this Permanente label will live with the house and will provide meaning full information that can be used for repairs and upgrades, as well as, appraisals and sales transactions when the house is turned over.

Cost Impact: Will not increase the cost of construction
The cost of a label is so minimal that it should not be considered increasing the cost of construction.

RM53-15 : M2301.3.3 (New)-SCHWARZ4982

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposed text belongs in the IECC. The proposal addresses electrical components not within the scope of the code. The proposed labeling is unnecessary.

Individual Consideration Agenda

Public Comment 1:

Proponent : Robby Schwarz, EnergyLogic, Inc., representing EnergyLogic, Inc. (robby@nrglogic.com) requests Approve as Submitted.

Commenter's Reason: The Committees Reason for disapproval was as follows. "The proposed text belongs in the IECC. The proposal addresses electrical components not within the scope of the code. The proposed labeling is unnecessary. Let's address all three of these concerns.

1. The proposed text belongs in the IECC

    • This proposal should also be adopted in the IECC but in order to have consistency between the codes it should be adopted here. The items requested on the label are not only energy related and are important to understand for any contractor that may interact with the system that has been installed. Electrician, Plumber, Rater, Appraiser, etc.

2. The proposal addresses electrical components not within the scope of the code

    • Chapter 23 of the IRC addresses Solar Thermal Energy Systems, Appendix U addresses Solar Electric, and Part VIII addresses Electrical issue. All of these section are associated with Solar systems which this proposal is addressing. Having a consolidated label that is permanent to the house ensure that all parties are certain of the system that has been installed.

3. The proposed labeling is unnecessary

    • Many components of the building are required to be labeled. From bypass values to gas vents and insulation as noted in section N1101.14. The code has addressed the need for permanent certificates or labels to be installed in the home for specific features where a record needs to be maintained of the specifics of the installation. Solar systems are a component of the building where a permanent record would be valuable to install. Just a certificate enables other professions to quickly assess what has been installed and how their services on the house need to be performed in relation to what is installed.

RM53-15

RM54-15

R202 (New), M2301.4.1.1 (New), M2301.4.1.2 (New)

Proposed Change as Submitted

Proponent : Rex Gillespie (rex.gillespie@caleffi.com)

2015 International Residential Code

Add new definition as follows:

SECTION 202 DEFINITIONS

FOOD GRADE FLUID. Potable water or a fluid containing additives listed in accordance with the Code of Federal Regulations, Title 21, Food and Drugs, Chapter 1, Food and Drug Administration, Parts 174-186

SECTION 202 DEFINITIONS

NON-FOOD GRADE FLUID. Any fluid that is not designated as a food grade fluid.

Add new text as follows:

M2301.4.1.1 Double-wall heat exchangers. Heat exchangers utilizing a *non-food grade fluid* shall separate the non-food grade fluid from the potable water by means of double-wall construction. An air gap open to the atmosphere shall be provided between the two walls. The point of discharge from the air gap between the two walls of the double-wall heat exchanger shall be visible.

M2301.4.1.2 Single-wall heat exchangers. Where single-wall heat exchangers are used, the heat transfer fluid shall be food grade fluid..

Reason: This proposal seeks to align with the language that appears in the IMC Chapter 1402.8 regarding heat exchangers and add definitions of FOOD GRADE and NON-FOOD GRADE heat transfer fluids as stated in SRCC Standard 300

Bibliography: SRCC Standard 300, Minimum Standard for Solar Thermal Water Heating Systems, January 3, 2013.

Cost Impact: Will not increase the cost of construction
The proposed changes are not anticipated to impact the cost of installation. No new equipment or features are required, and no new requirements are placed on manufacturers impacting certification or manufacturing costs. Proposed provisions provide additional clarity and direction for installers and code officials at inspection.

Analysis: A review of the standard proposed for inclusion in the code, CFR Title 21, Chapter 1, Parts 174-186, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

Public Hearing Results

Committee Action: Approved as Modified

Modification:

SECTION 202 DEFINITIONS

~~FOOD GRADE FLUID. Potable water or a fluid containing additives listed in accordance with the Code of Federal Regulations, Title 21, Food and Drugs, Chapter 1, Food and Drug Administration, Parts 174-186~~

SECTION 202 DEFINITIONS

~~NON-FOOD GRADE FLUID. Any fluid that is not designated as a food grade fluid.~~

Committee Reason: It is important to inform mechanical contractors about cross contamination prevention, as they are informed by the IPC and IMC. The modification deletes the proposed definitions because there is no need to reference federal law regarding food safety which is not within the scope of the code.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Disapprove.

Commenter's Reason: The proposed new sections will conflict with the previous section M2301.4. This section references P2902.5.2 in the plumbing section. It also references SRCC 300. The proposed text uses the term food grade. Section P2902.5.2 and Section M2301.4 use the terms essentially toxic and essentially non-toxic. This would result in a conflict and confusion to the code official. While the reason states it attempts to align with Section 1402.8 of the Mechanical Code it would conflict with the Plumbing Code and the plumbing section of the IRC. Furthermore, there is no Section 1402.8 in the Mechanical Code.

RM54-15

M9-15
202

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

SECTION 202 DEFINITIONS

VENTILATION. The natural or mechanical process of ~~supplying~~ introducing conditioned or unconditioned outdoor air to~~, or removing such~~ a space and removing air from~~, any~~ such space at an approximately equal rate.

Reason: The current definition dates back to when ventilation involved recirculation and has caused confusion because it still implies that ventilation involves recirculated air, when in fact, it does not. In the IMC, ventilation is by means of outdoor air only. There is no recognition of ventilation by recirculated indoor air. The revised definition makes this clear and also states a fundamental principal that ventilation does not occur without a balance of supplied air and removed air. If a system supplies 1000 cfm of outdoor ventilation air to a space, then it must exhaust, relieve or otherwise remove air at an equal rate or else the space will positively or negatively pressurize and the ventilation rate will not be realized. The revised definition is open such that it will recognize any means of supplying the outdoor air, such as by supply fans with relief fans or gravity openings and by means of exhaust fans and supply fans or gravity intake openings.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M9-15 : 202-VENTILATION-SNYDER3253

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Ventilation in Section 403 of the IMC is not solely supplying outdoor air. The proposal will cause confusion and conflicts with Section 401 of the IMC and also ASHRAE 62.1.

Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

SECTION 202 DEFINITIONS

VENTILATION. The natural or mechanical process of introducing conditioned or unconditioned outdoor air to a space and removing air from such space ~~at an approximately equal rate.~~ . .

Commenter's Reason: The IMC committee seemed to take issue with the words "at an approximate equal rate," even though Section 403.1 states the same requirement. Those words are not essential to the definition, however, and can be omitted. Chapter 4 does indeed deal only with outdoor air for ventilation. There is no allowance for recirculated ventilation air in Chapter 4. Whether by mechaical or natural means, ventilation is the process of bringing in outdoor air and releiving or exhausting the same amount of air. The proposed definition reflects this.

M9-15

M10-15

313 (New), Chapter 15

Proposed Change as Submitted

Proponent : Ronald George, Self, representing Self (Ron@Plumb-TechLLC.com)

2015 International Mechanical Code

Add new text as follows:

SECTION 313
SYSTEM DESIGN CONSIDERATIONS

313.1 Design of Building Water Systems The design of building water systems shall be in accordance with ASHRAE 188.

Add new standard(s) as follows: ASHRAE 188 - DRAFT_4th Public Review_09262014 Legionellosis: Risk Management for Building Water Systems

Reason: There are many design considerations in the ASHRAE standard that will help minimize Legionella bacteria growth in building water systems which can lead to Legionnaires Disease when water droplets are aerosolized and breathed in. Following the ASHRAE Standard will minimize the risk of a person contracting Legionnaires' disease or Legionellosis by having the design team consider system maintenance proceedures to control the risk of legionellosis associated with plumbing & mechanical systems.

Bibliography: See the folowing websites for more information:
www.LegionellaPrevention.org.

http://www.cdc.gov/legionella/about/,

www.Legionella.com, www.hcinfo.com

http://www.who.int/water_sanitation_health/emerging/legionella.pdf

Cost Impact: Will increase the cost of construction
Buildings without a history of Legionella and not fitting the requirements will not need to add to the cost of construction. A water management plan will need to be done if a building meets certain minimum requirements. The cost of construction to address temperature, stagnation and water treatment will slightly increase the cost of construction and maintenance. Any building that is operating without growing Legionella should already has these processes in place, this will simply require documentation as part of a water management plan. This will provide for system design, operation and treatment that will minimize legionella bacteria growth and help prevent Leginnaires Disease.

Analysis: A review of the standard proposed for inclusion in the code, ASHRAE 188, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M10-15 : 313 (New)-GEORGE5826

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The proposed standard is in draft form and not likely to be completed by the Public Comment Hearings. The content could change before the draft is finalized.

Assembly Action **:** None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Steven Ferguson, representing American Society of Heating Refrigerating and Air-Conditioning Engineers (sferguson@ashrae.org) requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Mechanical Code

313.1 Design of building water systems. The design of building water systems shall be in accordance with ASHRAE 188.

Modify standard(s) as follows: ANSI/ASHRAE 188 - ~~DRAFT_4th Public Review_09262014~~ 2015 - Legionellosis: Risk Management for Building Water Systems

Commenter's Reason: The reason for disapproval of this proposal at the committee hearings was
"The proposed standard is in draft form and not likely to be completed by the Public Comment Hearings. The content could change before the draft is finalized."

The Staff analysis on this standard was "Appears to be written in enforceable language. No proprietary references were noted. Consensus process stated."

In addition to the original proponent's reason statement. ASHRAE Standard 188 was developed with the intent of providing code officials and building operators information on how to manage the risk of legionellosis. ASHRAE Standard 188 was published on June 26, 2015, and is now publicly available as a final, published ANSI Standard. No substantive changes were made from the version previously provided to ICC for review.

For more information on the standard, go here: http://www.techstreet.com/ashrae/products/1897561

M10-15

M19-15
401.2

Proposed Change as Submitted

Proponent : Luis Escobar, representing Air Conditioning Contractors of America (luis.escobar@acca.org)

2015 International Mechanical Code

Revise as follows:

401.2 Ventilation required. Every occupied space shall be ventilated by natural means in accordance with Section 402 or ~~by mechanical means in accordance with Section 403. Where the air infiltration rate in a dwelling unit is less than 5 air changes per hour when tested with a blower door at a pressure of 0.2 inch water column (50 Pa) in accordance with Section R402.4.1.2 of the *International Energy Conservation Code*, the dwelling unit shall be ventilated~~ by mechanical means in accordance with Section 403. Ambulatory care facilities and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407.

Reason: This proposal is intended to clarify a current point of contention in the code.
Section 401.2 begins by allowing either natural or mechanical ventilation in the design. It then goes on to require mechanical ventilation if the infiltration rate is less than 5 air changes per hour (ACH) when tested per IECC section R402.4.1.2. However, IECC section R402.4.1.2 contains the procedures for verifying that the air leakage rate not exceed 5 ACH (climate zones 1 and 2) or 3 ACH (climate zones 3 - 8). This effectively allows the designer to pick natural ventilation up front only to get failed ultimately because of a catch-22 resulting from post-construction testing.

Further, it should be noted that the testing requirements ("air infiltration rate", i.e., "uncontrolled inward air leakage") does not comply with the IMC's definition of natural ventilation ("the movement of air into and out of a space through intentionally provided openings…").

The proposed change reverts back to the requirements in the 2009 IMC which simply allows for either natural or mechanical ventilation.

Cost Impact: Will not increase the cost of construction
This proposal allows the option of not installing mechanical ventilation, saving on construction costs.

M19-15 : 401.2-ESCOBAR5800

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Buildings are constructed to be more airtight. Occupants don't open windows as needed for natural ventilation. This section should not revert back to 2009 text as this is a step in the wrong direction.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Luis Escobar, representing ACCA (luis.escobar@acca.org) requests Approve as Submitted.

Commenter's Reason: During discussion of this and a subsequent proposal, the committee was self-contradictory. They stated clearly that they did not wish to make mechanical ventilation mandatory but were opposed to this original proposal's intent to clarify exactly that.
Furthermore, the current language causes the problem that it points to a more stringent code IECC that may not be adopted or enforced within many jurisdictions. In those places where both are not effective, it's proven to be distinctly problematic for contractors and home builders separately and together.

The original proposed change simply and clearly allows either option, natural or mechanical ventilation. If the IECC is effective in a particular jurisdiction then its requirements remain intact.

Public Comment 2:

Proponent : Donald Surrena, NAHB, representing NAHB (dsurrena@nahb.org) requests Approve as Submitted.

Commenter's Reason: The section as currently written in the 2015 IMC, mixes commercial, residential mechanical ventilation with IECC residential air infiltration tightness requirements. As written the section mixes dwelling units and buildings limiting how multifamily testing is done. Not allowing testing by a floor or series of dwelling units. That limiting criteria is in the energy code but it is only in the 2012 and 2015 IECC Residential section R402.4.1.2 Testing. There is no other use of the term "air infiltration" in the Mechanical Code. The issue as to whether or not natural or mechanical ventilation is needed is satisfied correctly in Section 402 (Natural Ventilation) or 403 (Mechanical Ventilation) The section as it is currently written is a hindrance to the Mechanical Code. A majority of states and jurisdictions have not adopted the 2012 or 2015 IECC and this section as written is in conflict with what states and jurisdictions have adopted. The Mechanical Code should not contain criteria from the IECC when that criteria does not represent energy code requirements most states and jurisdictions have adopted. The number of Blower door tests increases from what is required by dwelling unit compared to testing by the floor. Blower door testing for buildings by the story will be significantly increased by as much as $164 per additional test.[(a)]
Cost Impact: This will reduce the cost of construction.

Bibliography:
2012 cost efficiency study (Home Innovation Research Laboratory)

M19-15

M20-15

202 (New), 401.2

Proposed Change as Submitted

Proponent : Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Mechanical Code

Add new definition as follows:

SECTION 202 DEFINITIONS

NONTRANSIENT Characterized by occupancy of a dwelling unit for greater than 30 days by occupants who are primarily permanent in nature.

Revise as follows:

401.2 Ventilation required. Every occupied space shall be ventilated by natural means in accordance with Section 402 or by mechanical means in accordance with Section 403. ~~Where the air infiltration rate~~ Dwelling units in ~~a dwelling unit is less than 5 air changes per hour when tested with a blower door at a pressure of 0.2 inch water column (50 Pa) in accordance with Section R402.4.1.2 of the *International Energy Conservation Code*, the dwelling unit~~ nontransient residential occupancies shall be ventilated by mechanical means in accordance with Section 403. Ambulatory care facilities and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407.

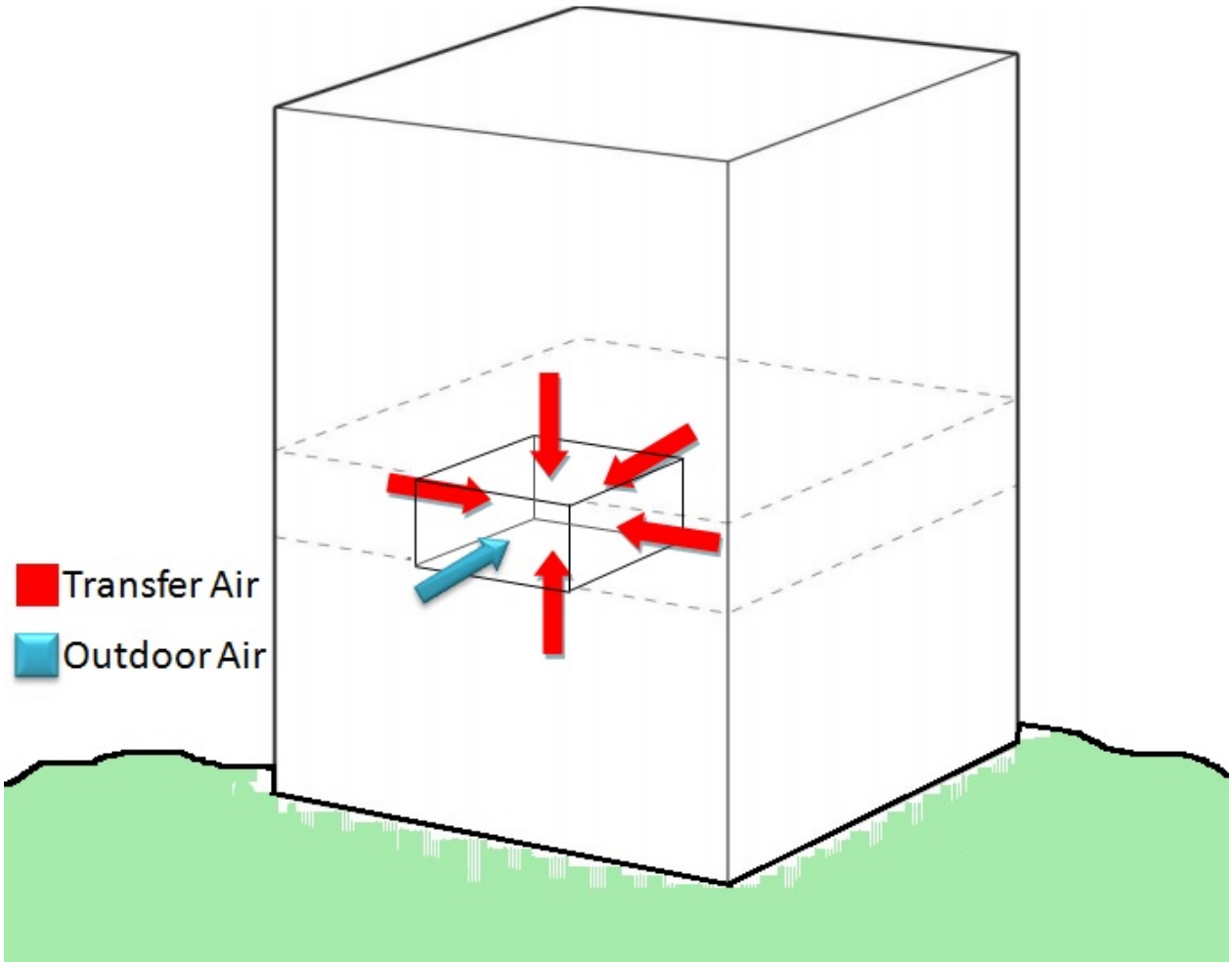
Reason: Compartmentalized Units are Tight and Should Require Mechanical Ventilation!

Attached dwelling units are being built tighter than ever, with increasing focus on compartmentalization of dwelling units for suppression of fire, smoke, odors, and environmental tobacco smoke; reduced energy use for heating and cooling; improved acoustics; and improved occupant comfort. Despite dwelling units being built tighter, there is no requirement for these tight units to be provided with mechanical ventilation. This proposal introduces a requirement for mechanical ventilation in today's tight and energy efficient buildings to provide occupants with minimum acceptable indoor air quality.

So, how tight are these dwelling units covered by the IMC being built? Unfortunately, we don't know, because very little data are available on new, code-minimum units. We do know that in general, dwelling units are getting much tighter over time (see Figure 1), but how much, we're not sure. For argument's sake, let's say they're TWICE as leaky as ENERGY STAR multifamily high rise units. Sound reasonable? This would put them at about 12 ACH50.[12] That sounds plenty leaky to provide sufficient natural ventilation, until you consider that a significant portion of the infiltration of attached dwelling units is likely to be transfer air from neighboring units, since much less of an attached unit's surface area is adjacent to the outdoors.

For example, interior dwelling units have only 1/6 surfaces exposed to the exterior, or about 10% of the total surface area for a unit with a square floor plan. Let's assume that up to 40% of the dwelling unit leakage comes through the 10% of the surface area accounted for by the exterior wall. This number can vary widely, but is a reasonable assumption based on multiple sources and feedback from builders, developers, and energy professionals that the most difficult area to air seal in attached units is the fire rated assembly wall separating dwelling units. So, for attached dwelling units that are twice as leaky as ENERGY STAR units, the effective outdoor air leakage rate would be about 5 ACH50 (40% of 12 ACH50). This is the

leakage rate that triggers mechanical ventilation requirements in both the IRC and IMC.



ENERGY STAR Tight	Typical Tightness	
Total Leakage	**Total Leakage**	**Leakage to Outdoors**
~6 ACH50 (0.3 cfm50/sqft)	~12 ACH50 (assuming twice as leaky as ENERGY STAR)	~5 ACH50 (assuming 40% of leakage comes from outdoors)

Table 1. Estimating the tightness of typical attached dwelling units.

In other words, by the IRC and IMC's own standards, typical dwelling units, regardless of whether or not they have a blower door test, should be provided with mechanical ventilation. This proposal limits the requirements for mechanical ventilation to the dwelling units that will have the highest impact on occupant health - those units whose occupants are expected to be nontransient, since these account for the lion's share of pollutant exposure over time. The definition of nontransient is adapted from the IBC definition of transient.

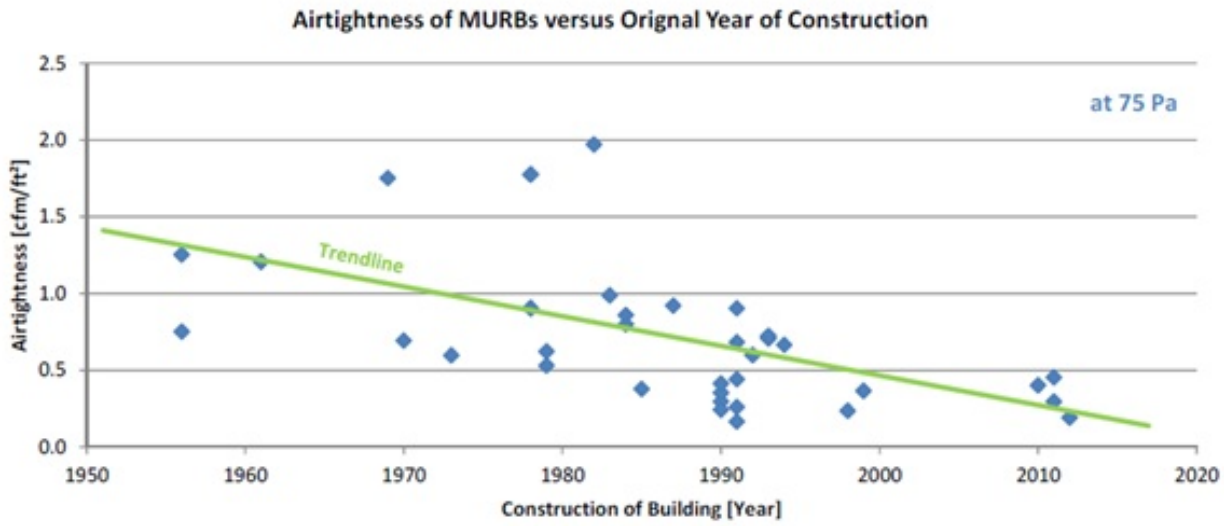


Figure 1. Airtightness of Multi-Unit Residential Buildings (MURB), by year.[14] The 0.4 cfm75/sqft metric for units built after 1995 would translate to about 0.3 cfm50/sqft. However, because this data set is limited and includes some high performance buildings across the U.S. and Canada, it should only be used to indicate a trend in tightness over time (dwelling units are getting tighter!) and should not be used to validate a specific leakage rate.

Building Tight without Mechanically Ventilating Can Have Huge Health Impacts

Building tight, compartmentalized dwelling units (5 ACH50 and below) has become the new standard practice, regardless of whether or not a developer confirms the tightness with a blower door test. Of course, the one potential problem with building tight is the negative impact it has on indoor air quality if mechanical ventilation is not provided. Without mechanical ventilation, tight dwelling units can experience elevated humidity levels; increased condensation potential on windows; higher concentrations of dust mites and allergens; and higher concentrations of pollutants such as particulate matter (which can be transmitted to the circulatory system and organs after being introduced to the lungs), radon (the second leading cause of lung cancer; has also been detected in high-rise units[13]), formaldehyde, acetaldehyde, and other VOCs that have negative health impacts.

We spend 90% of our time indoors, so it's no wonder that health impacts associated with poor indoor air quality include increased risk or exacerbation of asthma, stroke, neurotoxicity, and cancer, among others.[6,9,10] Many indoor air pollutants originate from building materials and finishes. Recent studies have shown that air pollution levels in dwelling units that are not mechanically ventilated can exceed outdoor national air quality standards for CO in 7-8% of homes and NO_2 in 55-70% of homes, during a typical week.[3] Other sources point to the increase in flame retardants in building materials and finishes driven by codes and standards as contributing to the presence of these chemicals in indoor dust and air and ultimately in the bodies of people (33 different flame retardants products have now been discovered in people's bodies; health effects of many of these are still largely unknown).[11]

Estimates for the cost of poor indoor air quality are staggering. The cost of asthma triggered by dampness and mold in U.S. residences has been estimated at $3.5 billion annually[5], and asthma now affects one in five Americans[4]. While dampness and mold should be controlled as much as possible at the source, there are other pollutants where source control is not an option for many households. Even when you exclude radon and second hand smoke from the list of indoor pollutants, poor indoor air quality in U.S. residences is estimated to account for 14% of all years of life lost and years of disability associated with "noncommunicable and nonpsychiatric diseases."[6] Based on another study, this is roughly equal to the negative health impacts of alcohol use, diabetes, and HIV/AIDS combined.[7]

Relying on Natural Ventilation Alone Doesn't Cut it In Tight Dwelling Units
A prominent study on occupant window operation in new (2002-2004 era) single family homes concluded that "a substantial percentage of homeowners never open their windows, especially in the winter" and that window operation coupled with natural infiltration does not provide the airflow rates necessary to achieve minimum indoor air quality.[8]

Nonetheless, natural ventilation through operable windows provides a useful and sometimes necessary function. Operable windows offer natural ventilation in addition to daylight and egress. Even with mechanical ventilation, a home occupant needs to be able to control their own environment, particularly in the case of an emergency such as a power failure (e.g., being able to open windows for airflow in the aftermath of a storm or blackout or in the case of equipment failure). The intention of this proposal is not to supplant natural ventilation, but to complement it. Experience shows that where mechanical ventilation is required (i.e., all ENERGY STAR homes, low-rise dwelling units built to the 2012 IECC, all new low-rise dwelling units in CA, etc.), builders are not generally using it to trade off against natural ventilation requirements. The exception for this would be toilet rooms, which for decades have often been provided with local exhaust instead of an operable window.

At this point, mechanical ventilation is needed to provide minimum acceptable air quality for code-minimum construction. This change will ensure that the comfortable, energy efficient homes that builders and developers are now building are also provided with the systems required by national consensus standards to provide for this need.

Bibliography:
1. Lstiburek, J.W. (2011). Just right and airtight. ASHRAE Journal: 53(5): 58-66.
2. States/jurisdictions that do not have a mechanical ventilation requirement include all of those that are currently enforcing the 2009 IECC. These figures were developed from the following sources:

a. State data: U.S. DOE Building Energy Codes Program, "Status of State Energy Code Adoption, Residential: Current" accessed from http://www.energycodes.gov/adoption/states on Dec 3, 2014.
b. State data: ICC, "International Codes – Adoption by State (September 2014)" accessed from http://www.iccsafe.org/gr/Documents/stateadoptions.pdf on Dec 3, 2014.
c. Jurisdictional data: Building department websites of various jurisdictions.
d. 2014 housing starts: National Association of Home Builders Total Housing Starts Forecast, October 2014.

3. Singer et al. (2014). Pollutant exposures from natural gas cooking burners: a simulation based assessment for Southern California." Lawrence Berkeley National Laboratory. LBNL-6712E.
4. Asthma and Allergy Foundation of America. "Asthma Facts and Figures" accessed from https://www.aafa.org/display.cfm?sub=42&id=8#_ftn1 on Dec 3, 2014.
5. Mudarri, D. and W.J. Fisk. (2007). Public health and economic impacts of dampness and mold. Indoor Air 17:226-235.
6. Logue et al. (2012). A method to estimate the chronic health impact of air pollutants in U.S. residences. Environmental Health Perspectives: 120(2): 216–222.
7. McKenna, M.T., C.M. Michaud, C.J.L. Murray, and J.S. Marks. (2005). Assessing the burden of disease in the United States using disability-adjusted life years. Am J Prev Med.: 28(5):415–423.
8. Offerman, F.J. (2009). Ventilation and indoor air quality in new homes. PIER Collaborative Report. California Energy Commission & California Environmental Protection Agency Air Resources Board.
9. ASHRAE. 2009. Indoor air quality guide. American Society of Heating Refrigerating and Air Conditioning Engineers, Inc. ISBN 978-1-933742-59-5.
10. Anderson, E.L. and Albert, R.E. (1999). Risk assessment and indoor air quality. Lewis Publishers, New York, NY.
11. Dedeo, M. & S. Drake. (2014). Healthy Environments: Strategies for Avoiding Flame Retardants in the Built Environment. Available at:

http://perkinswill.com/sites/default/files/PerkinsWill_FlameRetardantAlternatives.pdf. Accessed December 11, 2014.
12. The ENERGY STAR requirement for maximum total air leakage in high-rise multifamily dwelling units is 0.3 cfm50/sqft of the dwelling unit's envelope surface area. For a square, 1000 sqft unit with 9 foot ceilings, this translates to 6.3 ACH50 (the ENERGY STAR requirement for low-rise and mid-rise multifamily units is even tighter, at 3-6 ACH50, depending on climate zone). Assuming typical units are twice as leaky as high rise units would place them at ~12 ACH50 total leakage. Then, assuming that these units have 40% of their leakage to outdoors means that the effective outdoor air leakage rate would be ~5 ACH50.
13. Slack, H. & Palmer, J. (2011). Radon and Ventilation In Residential High-rise Buildings. Proceedings of Indoor Air 2011, Paper 447.
14. Canada Mortgage and Housing Corporation. (2013). Air Leakage Control in Multi-Unit Residential Buildings. Project 5314.00.

Cost Impact: Will increase the cost of construction
For those dwelling units that are not already provided with outdoor air, retail incremental costs for compliant systems can be less than $70. This is based on the incremental, retail cost difference between an entry-level exhaust fan (Broan 688 at $11.56) and a quiet, higher-efficiency exhaust fan that meets the requirements of the 2012 IECC (Broan QTR080 at $79.15). Prices were sourced from zoro.com on December 19, 2014.

M20-15 : 401.2-MOORE4859

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal addresses only dwelling units and is too extreme for single family dwellings. The proposed definition of nontransient is confusing relative to multi-family buildings verses hotels. The term transient is already defined and the proposed definition omits sleeping rooms. In some cliamtes, the proposal is overkill. The proposal should be climatic location oriented. Cost is an issue for installing makeup air systems.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Mike Moore, Newport Ventures, representing Broan-NuTone (mmoore@newportventures.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

SECTION 202 DEFINITIONS

~~**NONTRANSIENT** Characterized by occupancy of a dwelling unit for greater than 30 days by occupants who are primarily permanent in nature.~~

401.2 Ventilation required. Every occupied space shall be ventilated by natural means in accordance with Section 402 or by mechanical means in

accordance with Section 403. Dwelling units in nontransient residential occupancies shall be ventilated by mechanical means in accordance with Section 403. Ambulatory care facilities and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407.

Exception: Mechanical ventilation is not required for dwelling units in nontransient residential occupancies where at least one of the following conditions is met:

1. The building does not have mechanical cooling and it is in Climate Zone 1 or 2.
2. The building is intended to be thermally conditioned for less than 876 hours per year.

Commenter's Reason: This comment is intended to address all the committee's concerns with the original proposal, as follows:

1. Committee: The proposed definition is confusing and "transient" is already defined.

Response: The definition of "nontransient" has been removed to avoid confusion and misinterpretation.The IBC already contains a definition of "transient" and multiple references to "transient" and "nontransient", which have been in use since at least the 2003 version of the IBC, so we will assume that the industry is familiar with these terms and their meanings.

2. Committee: The proposal is overkill in some climates.

Response: An exception has been introduced to exempt dwelling units in temperate climates where thermal conditioning is not provided or is not expected to occur more than 10% of the year (876 hours). This exception is derived from and aligned with ASHRAE 62.2. The term "Climate Zone" is defined in the IBC and is used in the IBC and IECC.

3. Committee: Cost is an issue for installing makeup air systems.

Response: No intentional makeup air is required by this proposal. Based on the current code requirements, exhaust, supply, or balanced systems may be used to provide dwelling unit ventilation without triggering any makeup air requirements.

4. Committee: This is "too extreme".

Response: Building and energy codes are requiring tighter construction practices for dwelling units. Benefits of these air-sealing requirements include fire resistance, sound attenuation, rodent control, odor control, and a reduction in space conditioning energy use. However, air sealing also reduces natural infiltration and leads to the need for mechanical ventilation. Additionally, air pollutants are often not discernable by occupants, so occupants are often unaware of the need to ventilate. Finally, window operation is not always a reliable form of ventilation in MF units, where opening a window could simply introduce more transfer air into a dwelling unit instead of providing required outdoor air. Following are examples of air sealing requirements in the codes that point to efforts/requirements for compartmentalization and the need for mechanical ventilation.

1. IBC, air transfer to the corridor: This is not permitted. IBC Section 1020.5: "*Corridors* shall not serve as supply, return, exhaust, relief or ventilation air ducts."
2. ASHRAE 90.1 and IECC, air transfer through exterior walls: This is limited by requirements of ASHRAE 90.1 and the IECC, which have been widely adopted across states and include requirements to seal, caulk, gasket, or weather-strip joints, junctions, penetrations, seams, and openings in the building envelope, as well as air tightness targets in more recent versions.
3. IBC, Air transfer between units: Air transfer between units does not provide

ventilation air, but transfer air. Further, transfer air may be restricted by efforts to meet fire-resistance rating requirements of Chapters 6 and 7 of the IBC, fire-stop and fire-blocking requirements of the IRC and manufacturers of rated assemblies, sound attenuation requirements of Chapter 12 of the IBC specific to dwelling and sleeping units, and building owner efforts to manage rodents (see the IBC's optional appendix F101.3 for recommended sealing measures) and odors.

M20-15

M21-15
401.2, 501.3
Proposed Change as Submitted

Proponent : Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Mechanical Code

Revise as follows:

401.2 Ventilation required. Every occupied space shall be ventilated by natural means in accordance with Section 402 or by mechanical means in accordance with Section 403. ~~Where~~ Mechanical ventilation shall be required for the following:

1. Dwelling units where the air infiltration rate ~~in a dwelling unit~~ is less than 5 air changes per hour when tested with a blower door at a pressure of 0.2-inch water column (50 Pa) in accordance with Section R402.4.1.2 of the *International Energy Conservation Code*. ~~, the~~
2. Kitchens in dwelling ~~unit shall be ventilated by mechanical means in accordance with Section 403~~ units.
3. Ambulatory care facilities and Group I-2 occupancies. Such ventilation shall be ~~ventilated by mechanical means~~ in accordance with Section 407.

501.3 Exhaust discharge. The air removed by every mechanical exhaust system shall be discharged outdoors at a point where it will not cause a public nuisance and not less than the distances specified in Section 501.3.1. The air shall be discharged to a location from which it cannot again be readily drawn in by a ventilating system. Air shall not be exhausted into an attic, crawl space, or be directed onto walkways.

Exceptions:

1. Whole-house ventilation-type attic fans shall be permitted to discharge into the attic space of *dwelling units* having private attics.
2. Commercial cooking recirculating systems.
3. Where installed in accordance with the manufacturer's instructions and where mechanical ~~or *natural*~~ *ventilation* is otherwise provided in accordance with Chapter 4, *listed* and *labeled* domestic ductless range hoods shall not be required to discharge to the outdoors.

Reason:
Pollutants from cooking have been identified as some of the worst in the home, in terms of health impacts. Pollution during cooking events includes NO_2, CO, HCHO (formaldehyde), acrolein (produced when cooking meats and oils; used as a nerve agent in WWI), polycyclic aromatic hydrocarbons, and particulate matter (which can become lodged in the lungs or pass through the lungs to the circulatory system.[1,2,3,4,5,6,17,18,19,20,21] Overall, indoor air pollution from residential dwelling units (excluding the impacts of radon and second hand smoke) is estimated to account for 14% of all years of life lost and years of disability associated with

"noncommunicable and nonpsychiatric diseases."[7] Based on another study, this is roughly equal to the negative health impacts of alcohol use, diabetes, and HIV/AIDS combined.[8] The lion's share of the health impacts of poor indoor air quality in dwelling units has been linked to particulate matter, and indoor particulate matter is emitted when cooking on both electric and gas stoves.[3,7,9]

Overall, the primary source of particulate matter in non-smoking dwelling units is unvented cooking.[1] Natural ventilation alone is an insufficient means to provide required ventilation because it relies on pressure differentials that may or may not exist, and when they exist, the pressure differential could be equally as likely to spread the pollutant throughout the dwelling unit and neighboring units as it would be to exhaust the pollutant directly to the outdoors. Further, studies have shown that occupants often do not operate windows for ventilation.[10,11] Concerns with window operation include security and discomfort (including severe draft in winter).

To improve the health and life safety of dwelling unit occupants, this proposal would require that mechanical ventilation be provided for all kitchens in dwelling units. Some compelling facts and quotes on kitchen pollutants and ventilation follow.

- Simulations show that where a natural gas cooktop is used without a vented range hood, "62%, 9%, and 53% of occupants are routinely exposed to NO_2, CO, and HCHO (formaldehyde) levels that exceed acute health-based standards and guidelines."[12]
- "Emissions of nitrogen dioxide in homes with gas stoves exceed the EPA's definition of clean air in an estimated 55 percent to 70 percent of those homes, according to one model; a quarter of them have air quality worse than the worst recorded smog (nitrogen dioxide) event in London. Cooking represents one of the single largest contributors, generating particulate matter (formally known as PM2.5) at concentrations four times greater than major haze events in Beijing."[13]
- Increased exposure to NO_2 in dwelling units has been associated with an increased number of asthma attacks.[14,15,16]
- "People don't need to radically change their lifestyles. We need to change the building codes so that everyone gets a venting range hood."- Dr. Jennifer Logue, Research Scientist with Lawrence Berkeley National Laboratory[13]

Bibliography:

1. Wallace, L. A., Emmerich, S. J., & Howard-Reed, C. (2004). Source strengths of ultrafine and fine particles due to cooking with a gas stove. Environmental Science & Technology, 38(8), 2304-2311.
2. Singer, B. C., Apte, M. G., Black, D. R., Hotchi, T., Lucas, D., Lunden, M. M., . . . Sullivan, D. P. (2010). Natural Gas Variability in California: Environmental Impacts and Device Performance: Experimental Evaluation of Pollutant Emissions from Residential Appliances. Sacramento CA: California Energy Commission.
3. Dennekamp, M., Howarth, S., Dick, C. A. J., Cherrie, J. W., Donaldson, K., & Seaton, A. (2001). Ultrafine particles and nitrogen oxides generated by gas and electric cooking. Occupational and Environmental Medicine, 58(8), 511-516.
4. Moschandreas, D. J., & Relwani, S. M. (1989). Field-Measurements of NO2 Gas Range-Top Burner Emission Rates. Environment International, 15(1-6), 489-492.
5. Moschandreas, D., Relwani, S., Johnson, D., & Billick, I. (1986). Emission Rates from Unvented Gas Appliances. Environment International, 12(1-4), 247-254.
6. EPA. Fine Particle Designations. Available at http://www.epa.gov/pmdesignations/faq.htm. Sourced on December 10, 2014.
7. Logue et al. (2012). A method to estimate the chronic health impact of air pollutants in U.S. residences. Environmental Health Perspectives: 120(2): 216–222.
8. McKenna, M.T., C.M. Michaud, C.J.L. Murray, and J.S. Marks. (2005). Assessing the burden of disease in the United States using disability-adjusted life years. Am J Prev Med.: 28(5):415–423.
9. Nicole, W. (2014). Cooking Up Indoor Air Pollution: Emissions from Natural Gas Stoves. Environ Health Perspect: 122-A27.

10. Offerman, F.J. (2009). Ventilation and indoor air quality in new homes. PIER Collaborative Report. California Energy Commission & California Environmental Protection Agency Air Resources Board.
11. Klug, V. L., Lobscheid, A. B., & Singer, B. C. (2011). Cooking Appliance Use in California Homes – Data Collected from a Web-Based Survey LBNL-5028E. Berkeley, CA: Lawrence Berkeley National Laboratory.
12. Logue et al. (2014). Pollutant exposures from natural gas cooking burners: a simulation based assessment for Southern California." Lawrence Berkeley National Laboratory. LBNL-6712E.
13. Smith, P.A. (2013). The Kitchen as a Pollution Hazard. New York Times. http://well.blogs.nytimes.com/2013/07/22/the-kitchen-as-a-pollution-hazard/?_r=0. Accessed December 10, 2014.
14. Belanger, K., Gent, J. F., Triche, E. W., Bracken, M. B., & Leaderer, B. P. (2006). Association of indoor nitrogen dioxide exposure with respiratory symptoms in children with asthma. American Journal of Respiratory and Critical Care Medicine, 173(3), 297-303. doi: 10.1164/rccm.200408-1123OC.
15. Hansel, N. N., Breysse, P. N., McCormack, M. C., Matsui, E. C., Curtin-Brosnan, J., Williams, D. L., . . . Diette, G. B. (2008). A longitudinal study of indoor nitrogen dioxide levels and respiratory symptoms in inner-city children with asthma. Environmental Health Perspectives, 116(10), 1428-1432. doi:10.1289/ehp.11349.
16. Garrett, M. H., Hooper, M. A., Hooper, B. M., & Abramson, M. J. (1998). Respiratory symptoms in children and indoor exposure to nitrogen dioxide and gas stoves. American Journal of Respiratory and Critical Care Medicine, 158(3), 891-895.
17. Abdullahi, K. L., Delgado-Saborit, J. M., & Harrison, R. M. (2013). Emissions and indoor concentrations of particulate matter and its specific chemical components from cooking: A review. Atmospheric Environment, 71, 260-294. doi: Doi 10.1016/J.Atmosenv.2013.01.061.
18. Buonanno, G., Morawska, L., & Stabile, L. (2009). Particle emission factors during cooking activities. Atmospheric Environment, 43(20), 3235-3242. doi: Doi 10.1016/J.Atmosenv.2009.03.044.
19. Fortmann, R., Kariher, P., & Clayton, R. (2001). Indoor air quality: residential cooking exposures. Sacramento, CA: Prepared for California Air Resources Board.
20. Seaman, V. Y., Bennett, D. H., & Cahill, T. M. (2009). Indoor acrolein emission and decay rates resulting from domestic cooking events. Atmospheric Environment, 43(39), 6199-6204. doi: 10.1016/j.atmosenv.2009.08.043.
21. Zhang, Q. F., Gangupomu, R. H., Ramirez, D., & Zhu, Y. F. (2010). Measurement of Ultrafine Particles and Other Air Pollutants Emitted by Cooking Activities. International Journal of Environmental Research and Public Health, 7(4), 1744-1759. doi: 10.3390/ijerph7041744.

Cost Impact: Will increase the cost of construction

For those units that do not already install kitchen exhaust, the cost of construction will increase, depending on equipment selection. Exhaust hoods start around $30 retail (e.g., Broan economy hood #403001, 2-speed, moving 160 cfm, priced on zoro.com at $33.36 with free shipping on December 19, 2014). Most dwelling units have some sort of recirculating exhaust hood at a minimum, so the actual incremental cost could probably be disregarded for the equipment itself. For units that are recirculating only, installed cost to the GC for ducting is estimated at ~$13/linear foot for 3.25x10" duct (RS Means 2013 Residential Cost Data, adjusted for inflation).

M21-15 : 401.2-MOORE4909

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Not every kitchen needs mechanical ventilation. The proposed text belongs in Section 505. The proposal is not considerate of the kitchen size. It would be difficult to size the exhaust system. The requirements should be tailored to the climatic location.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Mike Moore, Newport Ventures, representing Broan-NuTone (mmoore@newportventures.net) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Mechanical Code

505.1 Domestic systems. Where domestic ~~range hoods and~~ cooktops, ranges, or open-top broilers are installed, they shall be provided with a domestic ~~appliances equipped with downdraft~~ cooking exhaust ~~are provided, such hoods and appliances~~ system. Domestic cooking exhaust systems shall discharge to the outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum or copper. Such ducts shall have smooth inner walls, shall be air tight, shall be equipped with a backdraft damper, and shall be independent of all other exhaust systems.

Exceptions:

1. In Group R occupancies, domestic cooking exhaust systems are not required where at least one of the following conditions is met:
    - 1.1. The building does not have mechanical cooling and it is in Climate Zone 1 or 2.
    - 1.2. The building is intended to be thermally conditioned for less than 876 hours per year.
2. In other than Group I-1 and I-2, where installed in accordance with the manufacturer's instructions and where mechanical ~~or natural~~ ventilation is otherwise provided in accordance with Chapter 4, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.
3. Ducts for domestic kitchen cooking appliances equipped with downdraft exhaust systems shall be permitted to be constructed of Schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:
    - 3.1. The duct shall be installed under a concrete slab poured on grade.
    - 3.2. The underfloor trench in which the duct is installed shall be completely backfilled with sand or gravel.
    - 3.3. The PVC duct shall extend not more than 1 inch (25 mm) above the indoor concrete floor surface.
    - 3.4. The PVC duct shall extend not more than 1 inch

(25 mm) above grade outside of the building.
3.5. The PVC ducts shall be solvent cemented.

~~**505.4 Other than Group R.** In other than Group R occupancies, where domestic cooking appliances are utilized for domestic purposes, such appliances shall be provided with domestic range hoods. Hoods and exhaust systems shall be in accordance with Sections 505.1 and 505.2.~~

Commenter's Reason: The original proposal's reason statement provides extensive rationale behind why exhaust should be provided for kitchens, based on well documented health concerns, and will not be repeated here. This comment revises and improves upon the original proposal based on the following committee input:

1. Committee: Not every kitchen needs mechanical ventilation. The requirement should be tailored to the climatic location.

Response: This comment introduces an exception that does not require mechanical ventilation in Group R occupancies when window operation might be expected to occur regularly (i.e., Climate Zones 1 and 2 where no space conditioning system is installed or where space conditioning is expected to happen very infrequently; 876 hours corresponds to 10% of the year). This exception was derived from ASHRAE 62.2. "Climate zone" is defined and used in the IBC and IECC, so no new definition is required here. This exception does not apply to "other than Group R occupancies", as they are already required to have a range hood under 505.4. Please note that the text of 505.4 has been deleted, but the requirement still remains; it is just rolled up into 505.1 to streamline and simplify the text in this section. This exception does not apply to "other than Group R occupancies", as they are already required to have a range hood under 505.4. Please note that the text of 505.4 has been moved to exception #1 of 505.1 to improve the organization of the section. No changes are made to the existing requirement of 505.4.

2. Committee: The proposed text belongs in Section 505.

Response: We agree and have incorporated this suggestion.

3. Committee: The proposal is not considerate of the kitchen size. It would be difficult to size the exhaust system.

Response: Requirements for kitchen exhaust air flow rates are located in Chapter 4, Table 403.3.2.3 and Table 403.3.1.1. Depending on the type of occupancy, the requirements are either static (as is the case for dwelling units: 100 cfm required for intermittent or 25 cfm continuous), or they are determined as a function of the kitchen size for food service operations (i.e., cfm/sqft). Where domestic range hoods are installed in dwelling units, the static requirement still applies. And where domestic kitchen exhaust systems are installed in locations other than dwelling units, the calculation of cfm based on kitchen square footage is very simple. This proposal and comment do not make any changes to existing kitchen exhaust rates within the code.

Please note that exception #2 has been retained to permit specification of other exhaust systems within the kitchen, such as wall or ceiling mounted exhaust fans. This can be a cost-savings measure in some cases and may be pursued when ducting a range hood could otherwise prove difficult. Finally, this comment was drafted after consulting ICC staff to ensure that it could merge easily with M44, in the case that M44 is approved in the public comment hearings.

M21-15

M23-15

202 (New), 403.1, 403.3, 403.3.1, 403.3.2, 403.3.2.1, 403.3.2.2, 403.3.2.3

Proposed Change as Submitted

Proponent : Mike Moore, Newport Ventures, Representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Mechanical Code

Add new definition as follows:

SECTION 202 DEFINITIONS

NONTRANSIENT Characterized by occupancy of a dwelling unit for greater than 30 days by occupants who are primarily permanent in nature.

Revise as follows:

403.1 Ventilation system. Mechanical ventilation shall be provided by a method of supply air and return or *exhaust air* except that mechanical ventilation air requirements for ~~Group R-2, R-3 and R-4 occupancies three stories and less~~ dwelling units in ~~height above grade plane~~ nontransient residential occupancies shall be provided by an exhaust system, supply system or combination thereof. The amount of supply air shall be approximately equal to the amount of return and *exhaust air*. The system shall not be prohibited from producing negative or positive pressure. The system to convey *ventilation air* shall be designed and installed in accordance with Chapter 6.

403.3 Outdoor air and local exhaust airflow rates. ~~Group R-2, R-3 and R-4 occupancies three stories and less~~
Dwelling units in ~~height above grade plane~~ nontransient residential occupancies shall be provided with outdoor air and local exhaust in accordance with Section 403.3.2. All other buildings intended to be occupied shall be provided with outdoor air and local exhaust in accordance with Section 403.3.1.

403.3.1 Other buildings intended to be occupied. The design of local exhaust systems and ventilation systems for outdoor air for occupancies other than ~~Group R-2, R-3 and R-4 three stories and less above grade plane~~ dwelling units in nontransient residential occupancies shall comply with Sections 403.3.1.1 through 403.3.1.5.

403.3.2 ~~Group R-2, R-3 and R-4~~ Dwelling units in nontransient residential occupancies, ~~three stories and less~~. The design of local exhaust systems and ventilation systems for outdoor air in ~~Group R-2, R-3 and R-4 occupancies three stories and less~~ dwelling units in ~~height above grade plane~~ nontransient residential occupancies shall comply with Sections 403.3.2.1 through 403.3.2.3.

403.3.2.1 Outdoor air for dwelling units in nontransient residential occupancies. *No change to text.*

Delete without substitution:

~~**403.3.2.2 Outdoor air for other spaces.** Corridors and other common areas within the conditioned space shall be provided with outdoor air at a rate of not less than 0.06 cfm per square foot of floor area.~~

Revise as follows:

TABLE 403.3.2.3
MINIMUM REQUIRED LOCAL EXHAUST RATES FOR ~~GROUP R-2, R-3, AND R-4~~ DWELLING UNITS IN NONTRANSIENT RESIDENTIAL OCCUPANCIES

AREA TO BE EXHAUSTED	EXHAUST RATE CAPACITY
Kitchens	100 cfm intermittent or 25 cfm continuous
Bathrooms and toilet rooms	50 cfm intermittent or 20 cfm continuous

For SI: 1 cubic foot per minute = 0.0004719 m^3/s.

Reason: This proposal is intended to simplify the optional mechanical ventilation compliance path for all dwelling units in nontransient residential occupancies, regardless of building height. This change is aligned with a recent scope change in standards ASHRAE 62.2 and 62.1 that moved jurisdiction of dwelling units in nontransient residential occupancies to the scope of ASHRAE 62.2, regardless of building height.[1] This change was strongly supported by both committees, primarily for the following reason:

- Ventilation rates for dwelling units in nontransient residential occupancies should be consistent across all units, regardless of building height. Why should a dwelling unit in a 4 story building require an outdoor air ventilation rate that is up to two times greater than that in a 3 story building?

Approval of this particular proposal to the IMC would have the following benefits:

- More closely align the IMC's ventilation requirements with consensus standards without requiring the user to access or purchase those standards.
- Simplify the design, specification, and enforcement of outdoor air ventilation and exhaust requirements for dwelling units in nontransient residential occupancies, regardless of building height.
- Save significant energy: As an example, the IMC currently requires a 1000 sqft, 2 bedroom apartment with 9 foot ceilings to be provided with 53 cfm of outdoor air when located in a three story building (using equation 4-9). For the identical unit in a four story building, the IMC requires 53-105 cfm of outdoor air, depending on the type of HVAC system installed (equations 4-1 and 4-2, and tables 403.3.1.1 and 403.3.1.1.1.2). So, up to 50% of the ventilation energy currently required for high-rise dwelling units can be saved by simply transitioning all ventilation requirements for dwelling units in nontransient residential occupancies to those currently contained in Section 403.3.2.

Bibliography:

1. ASHRAE 62.2-2013 Addendum G. To access a free copy, please contact ASHRAE at (404) 636-8400.

Cost Impact: Will not increase the cost of construction
This change is not expected to increase the cost of construction because it serves to simplify the design, specification, and enforcement of outdoor air ventilation and exhaust requirements for dwelling units in nontransient residential occupancies, regardless of building height.

M23-15 : 403-MOORE4858

Public Hearing Results

Committee Action: Disapproved

Committee Reason: With the deletion of Section 403.2.2, corridors would no longer be covered. Nontransient is not the exact opposite of transient. Sleeping rooms are not addressed.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Mike Moore, Newport Ventures, representing Broan-NuTone (mmoore@newportventures.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

SECTION 202 DEFINITIONS

~~**NONTRANSIENT** Characterized by occupancy of a dwelling unit for greater than 30 days by occupants who are primarily permanent in nature.~~

403.3 Outdoor air and local exhaust airflow rates. Dwelling units in nontransient residential occupancies shall be provided with outdoor air and local exhaust in accordance with Section 403.3.2. ~~All other~~ Other spaces in buildings intended to be occupied shall be provided with outdoor air and local exhaust in accordance with Section 403.3.1.

403.3.1 Other spaces within buildings intended to be occupied. *No change to text.*

Commenter's Reason: It is important to note that this proposal does not introduce any new requirements for mechanical ventilation. The intent of this proposal is to align the IMC with recent revisions to the scopes of ASHRAE 62.1 and ASHRAE 62.2. The proposal is meant to simplify and streamline mechanical ventilation provisions for dwelling units where required**.** This will lead to greater consistency in design, specification, and enforcement of code provisions. Unfortunately, there was confusion with the proposal and its effects at the first hearing, which I hope to resolve here by responding to the committee's objections.
1. Committee: With the deletion of Section 403.2.2, corridors would no longer be covered.

Response: Corridors are not considered residential dwelling units, and so would no longer be covered under Section 403.2.2. Instead, corridors,

common areas, and other areas of residential occupancies that are not within residential dwelling units would be addressed in Section 403.3.1, as they have been historically. No change will result in the ventilation requirements for these areas.

2. Committee: Sleeping rooms are not addressed.

   Response: sleeping rooms have different facilities than dwelling units and so do not have the same ventilation requirements. Moving forward, ventilation requirements for sleeping units will still be covered under Section 403.2.2, as they are currently.

3. Committee: Nontransient is not the exact opposite of transient.

   Response: "Transient" is defined in the IBC and both "nontransient" and "transient" are used in IBC Section 310. I've deleted the proposed definition of "nontransient" to avoid any confusion that could otherwise be caused. We can assume that industry is familiar with the terms "nontransient" and "transient" since they have been used in the IBC since at least 2003.

M23-15

M31-15
501.3.1

Proposed Change as Submitted

Proponent : Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Mechanical Code

Revise as follows:

501.3.1 Location of exhaust outlets. The termination point of exhaust outlets and ducts discharging to the outdoors shall be located with the following minimum distances:

1. For ducts conveying explosive or flammable vapors, fumes or dusts: 30 feet (9144 mm) from property lines; 10 feet (3048 mm) from operable openings into buildings; 6 feet (1829 mm) from exterior walls and roofs; 30 feet (9144 mm) from combustible walls and operable openings into buildings which are in the direction of the exhaust discharge; 10 feet (3048 mm) above adjoining grade.
2. For other product-conveying outlets: 10 feet (3048 mm) from the property lines; 3 feet (914 mm) from exterior walls and roofs; 10 feet (3048 mm) from operable openings into buildings; 10 feet (3048 mm) above adjoining grade.
3. For all *environmental air* exhaust: 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable openings into buildings for all occupancies other than Group U, and 10 feet (3048 mm) from mechanical air intakes. Such exhaust shall not be considered hazardous or noxious. Where a combined exhaust and intake terminal is used to separate intake air from exhaust air originating in living space other than kitchens, a minimum separation distance between these two openings shall not be required, provided that the exhaust air concentration within the intake air flow does not exceed 10%, as established by the manufacturer of such terminal.
4. Exhaust outlets serving structures in flood hazard areas shall be installed at or above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment.
5. For specific systems see the following sections:
    - 5.1. Clothes dryer exhaust, Section 504.4.
    - 5.2. Kitchen hoods and other kitchen exhaust *equipment*, Sections 506.3.13, 506.4 and 506.5.
    - 5.3. Dust stock and refuse conveying systems, Section 511.2.
    - 5.4. Subslab soil exhaust systems, Section 512.4.
    - 5.5. Smoke control systems, Section 513.10.3.
    - 5.6. Refrigerant discharge, Section 1105.7.
    - 5.7. Machinery room discharge, Section 1105.6.1.

Reason:

Combined exhaust/supply terminations are regularly installed with heating and energy recovery ventilators (H/ERVs) used for dwelling units. Their use reduces building penetrations, labor, and associated system costs. By reducing the number of penetrations, air leakage can also be reduced, resulting in space conditioning energy savings. Further, the durability of the structure can be improved through reducing entry pathways for bulk water. Combined terminations are regularly approved and installed in single family and multifamily dwelling units across the country, and manufacturer tests have demonstrated that minimum cross-contamination of airflow results from these terminations. There is currently no industry standard by which to test these units, so we have simply proposed that their performance be verified by the manufacturer, as is the practice in other areas of the code (IMC Sections 513.10.1, 801.14, 1002.2, 1006.3, 1006.7, 1007.2, 1102.2.2.3, 1108.1 exception 3, 1206.7, 1210.6.6.2, etc.). The 10% cross contamination metric is based on language in ASHRAE 62.1 that limits cross contamination of exhaust and supply streams to 10% for "air with moderate contaminant concentration, mild sensory-irritation intensity, or mildly offensive odors"; a similar exception exists in the IMC, Section 514.4. In both the IMC and ASHRAE 62.1, no standard is cited for determining cross-contamination, presumably because none yet exists.

Cost Impact: Will not increase the cost of construction

This proposal is expected to reduce construction costs by eliminating the need for a second wall cap and extra ducting that would otherwise be required to separate intake and exhaust airstreams.

M31-15 : 501.3.1-MOORE4876

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Research does exist to support the required separation requirements in the IMC and ASHRAE 62.1.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Mike Moore, Newport Ventures, representing Broan-NuTone (mmoore@newportventures.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

501.3.1 Location of exhaust outlets. The termination point of exhaust outlets and ducts discharging to the outdoors shall be located with the following minimum distances:

1. For ducts conveying explosive or flammable vapors, fumes or dusts: 30 feet (9144 mm) from property lines; 10 feet (3048 mm)

from operable openings into buildings; 6 feet (1829 mm) from exterior walls and roofs; 30 feet (9144 mm) from combustible walls and operable openings into buildings which are in the direction of the exhaust discharge; 10 feet (3048 mm) above adjoining grade.

2. For other product-conveying outlets: 10 feet (3048 mm) from the property lines; 3 feet (914 mm) from exterior walls and roofs; 10 feet (3048 mm) from operable openings into buildings; 10 feet (3048 mm) above adjoining grade.
3. For all *environmental air* exhaust: 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable openings into buildings for all occupancies other than Group U, and 10 feet (3048 mm) from mechanical air intakes. Such exhaust shall not be considered hazardous or noxious. Where a factory-built combined exhaust and intake ~~terminal~~ termination is used to separate intake air from exhaust air originating in dwelling unit living ~~space~~ spaces other than kitchens, a minimum separation distance between these two openings shall not be required, provided that the exhaust air concentration within the intake air flow does not exceed 10%, as established by the manufacturer of ~~such terminal~~ the termination.
4. Exhaust outlets serving structures in flood hazard areas shall be installed at or above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment.
5. For specific systems see the following sections:
    - 5.1. Clothes dryer exhaust, Section 504.4.
    - 5.2. Kitchen hoods and other kitchen exhaust *equipment*, Sections 506.3.13, 506.4 and 506.5.
    - 5.3. Dust stock and refuse conveying systems, Section 511.2.
    - 5.4. Subslab soil exhaust systems, Section 512.4.
    - 5.5. Smoke control systems, Section 513.10.3.
    - 5.6. Refrigerant discharge, Section 1105.7.
    - 5.7. Machinery room discharge, Section 1105.6.1.

Commenter's Reason: The original proposal was recently approved unanimously by the ASHRAE 62.2 committee as addendum h to ASHRAE 62.2-2013. In transferring the language to the IMC, a couple valid concerns were raised as follows:
1. The proposal would exempt site-built combined terminations from the minimum separation requirements, which was not the intent, as such terminations are not expected to be designed and tested to confirm effective separation of exhaust and supply air, and

2. The proposal does not clarify that this exception only applies to dwelling units.

This comment clarifies that the exception applies only to dwelling units and to combined exhaust/intake terminations that are factory-built, and will align the IMC with ASHRAE 62.2, whose scope now applies to both low-rise and high-rise dwelling units.

Public Comment 2:

Proponent : Steven Ferguson, representing American Society of Heating Refrigerating and Air-Conditioning Engineers (sferguson@ashrae.org) requests Disapprove.

Commenter's Reason: This proposal would permit cross-contamination of the intake air with up to 10% of the exhaust air, and cites a provision in ASHRAE Standard 62.1 which is intended to only be limtied to energy recovery applications, and should not be applied more broadly as this proposal would permit. ASHRAE supports the disapproval of this proposal as written.

M31-15

M32-15

501.6 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Add new text as follows:

501.6 Discharge from multiple exhaust fans. The discharge outlets of multiple exhaust fans shall not be connected to a common duct. The discharge outlets of exhaust fans serving separate dwelling units shall not be connected to a common duct.

Reason: If exhaust fans such as toilet and kitchen exhaust fans are connected together on the positive pressure (discharge) side of the fans, exhaust air will flow through any fan that is not running. The typical backdraft dampers do not prevent leakage and are not reliable unless cleaned and maintained. If the fans operate in parallel or have effective backdraft dampers, they could share a common discharge duct if such duct was properly sized and configured. Often such connections involve no engineering and consist of fans duct taped to a tee fitting without even increasing the duct size as necessary. If the fans serve different dwelling units, the exhaust air from one dwelling would discharge into another dwelling unit and this is unacceptable.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction in those cases where the discharge side of exhaust fans would have been connected to a common duct, because separate exhaust terminations are required by the proposed text.

M32-15 : 501.5-SNYDER3260

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal would not allow individual fans to discharge to a multi-story exhaust shaft having a fan on the top of the shaft. The proposal would require more roof penetrations.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Amanda Hickman, InterCode Incorporated, representing Air Movement and Control Association International (amanda@intercodeinc.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

501.6 Discharge from multiple exhaust fans. The discharge outlets of multiple exhaust fans shall not be connected to a common duct.

> **Exception:** The discharge outlets of exhaust fans ~~serving separate dwelling units~~ shall not be ~~connected~~ prohibited from connecting to a common duct where the pressure in such common duct is maintained at a negative pressure with respect to the spaces served by the exhaust fans.

Commenter's Reason: Multiple exhaust fans are commonly exhausted into common ducts. Backdraft dampers are sometimes insufficient, or in the case of clothes dryer exhausts, non-existent. We support this intent of the proposal to avoid cross contamination between dwellings, however, exhausting into a common duct with a larger powered shared exhaust fan maintaining a lower pressure in the common duct than that in the dwellings is a well proven and working practice. The pressure level in the common duct is typically controlled by a barometric damper or by a constant pressure system controlling the speed of the larger powered shared exhaust fan.

Public Comment 2:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

501.6 Discharge from multiple exhaust fans. The discharge outlets of multiple exhaust fans shall not be connected to a common duct. The discharge outlets of exhaust fans serving separate dwelling units shall not be connected to a common duct. This section does not apply to exhaust fans that discharge to a common multiple story exhaust duct system that complies with Section 505.3.

Commenter's Reason: The committee was concerned that the proposed text does not allow muti-story exhaust shafts that have a common fan on the terminus. The IMC currently addresses such systems only for clothes dryers and domestic kitchen exhaust. The modification proposed will recognize the domestic kitchen mult-story shaft systems. The clothes dryer application is not relavent to this proposal. The committee was also concerned about requiring additional roof penetrations if exhaust fans are not combined for a common discharge duct. Going through the roof, soffit or sidewall with each exhaust duct is typically the best choice because joining together exhausts fans from different locations will require long duct runs which adds expense, increases duct resistance, impedes exhaust flow, invites condensation formation in the duct interior and requires sizing calculations. And of course, combining the exhaust fans to a common exhaust duct means that exhaust will flow backwards through any exhaust fan that is not running. The integral

backdraft dampers in exhaust fans will not prevent such backflow.

M32-15

M34-15
504.3

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

2015 International Mechanical Code

Revise as follows:

504.3 Cleanout. Each vertical riser shall be provided with a means for cleanout. Dryer duct terminations shall by design, provide access for cleaning the exhaust duct.

Reason: The routine cleaning of the dryer exhaust ducts minimizes the potential for a fire in the duct as well as increasing the efficiency of the appliance. Duct cleaning services now provide this service for dryer exhaust ducts using a wand and brush. Many duct cleaning service companies enter the dryer exhaust duct through the duct termination. This offers an easy access to the dryer exhaust duct system. If a proper dryer exhaust terminal is not provided that allows ease of access, some companies have been known to wrongly remove the termination lid or cover creating a potential leak situation.

Examples of vent caps that duct cleaners wrongly disassemble to gain access.

Examples of vent caps that duct cleaners wrongly disassemble to gain access.

Cost Impact: Will increase the cost of construction
The cost may increase for a vent terminal that allows cleaning.

M34-15 : 504.3-BALLANCO4121

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Lack of maintenance is the problem, not lack of access. The proposal is too vague regarding the type of access. The current code requires a means for cleanout. Short duct runs may not need access for cleaning.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

504.3 Cleanout. Each vertical riser shall be provided with a means for cleanout. Dryer exhaust ducts that are installed in enclosed wall or ceiling cavitities or in an attic area shall have duct terminations ~~shall by design,~~ that provide access for cleaning the ~~exhaust~~ duct.

Commenter's Reason: It was pointed out at the first hearing that some ducts penetrate the basement wall or sidewall of the building and are readily available for cleaning on the inside of the building. The intent of this requirement was to apply to long duct runs that are not readily accessible on the interior of the building. This will allow the cleaning of the dryer exhaust duct from the outside.

The lint build up on the interior of the dryer exhaust duct presents a fire hazard. These ducts need regular cleaning to reduce the fire hazard and increase the efficiency of the dryer.

The majority of dryer exhaust terminations are held in place with screws. Removing these screws allows easy access for cleaning. This change would prevent the use of roof jacks that are not intended to be used as dryer exhaust terminals.

M34-15

M35-15
504.4

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

2015 International Mechanical Code

Revise as follows:

504.4 Exhaust installation. Dryer exhaust ducts for clothes dryers shall terminate on the outside of the building and shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. Exhaust duct penetrations of exterior wall and roof assemblies shall be sealed air-tight to prevent dryer exhaust from re-entering the building. Ducts shall not be connected or installed with sheet metal screws or other fasteners that will obstruct the exhaust flow. Clothes dryer exhaust ducts shall not be connected to a vent connector, vent or *chimney*. Clothes dryer exhaust ducts shall not extend into or through ducts or plenums.

Reason: This change clarifies that the dryer exhaust must vent to the outside without the possibility of having the dryer exhaust return to the building. In some regions, friction-fitting a ducts' end into a roof cap appears to still be acceptable. This change adds the language to require a positive leak-proof assembly that will prevent the dryer exhaust from reentering the building. The high humidity of the dryer exhaust can cause all sorts of problems within the building elements if the dryer exhaust can reenter the building. Humidity control is an important part of any building design. As such, humid lint-laden air should never be given a path to enter the building after being exhausted.

Cost Impact: Will not increase the cost of construction
This change is simply clarifying the intent of the code.

M35-15 : 504.4-BALLANCO4118

Public Hearing Results

Committee Action: Disapproved

Committee Reason: If flashed properly, lint cannot enter the building. No justification for singling out dryers as opposed to other exhaust terminals. The example photos were all installations that were improperly installed to begin with.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

302.6 Roof penetrations. Where a pipe, duct, vent, chimney, or exhaust termination penetrates a roof, a flashing shall be installed or the penetration shall be sealed water tight.

302.7 Penetrations of exterior walls. Where a pipe, duct, vent, chimney, or exhaust termination penetrates an exterior wall, a waterproof seal shall be made on the exterior of the wall by one of the following methods:

1. A waterproof sealant applied at the joint between the wall and the penetrating item.
2. A flashing of an approved elastomeric material.

504.4 Exhaust installation. Dryer exhaust ducts for clothes dryers shall terminate on the outside of the building and shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. ~~Exhaust duct penetrations of exterior wall and roof assemblies shall be sealed air tight to prevent dryer exhaust from re-entering the building.~~ Ducts shall not be connected or installed with sheet metal screws or other fasteners that will obstruct the exhaust flow. Clothes dryer exhaust ducts shall not be connected to a vent connector, vent or *chimney*. Clothes dryer exhaust ducts shall not extend into or through ducts or plenums.

Commenter's Reason: What this code change pointed out is that the code is remiss regarding penetrations of mechanical system. The Plumbing Code provides detailed requirements regarding pipe penetrations of roofs and exterior walls. It also has requirements for protection of the structure. While the Mechanical Code has requirements for protection of the structure, there are no requirements for penetration of the roof or exterior wall.

This modification will correct the oversight in the Mechanical Code. Everyone acknowledged that sealing the opening around a duct termination was necessary. However, the claim was that this is addressed in the Energy Code. Exterior penetrations are not addressed in the Energy Code, only penetrations of the envelope are addressed. Quite often, exterior penetrations are not envelope penetrations.

M35-15

M36-15
504.4, 504.8.2

Proposed Change as Submitted

Proponent : Guy McMann, Jefferson County Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Revise as follows:

504.4 Exhaust installation. Dryer exhaust ducts for clothes dryers shall terminate on the outside of the building and shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. ~~Ducts shall not be connected or installed with sheet metal screws or other fasteners that will obstruct the exhaust flow.~~ _Clothes dryer exhaust ducts shall not be connected to a vent connector, vent or *chimney*. Clothes dryer exhaust ducts shall not extend into or through ducts or plenums.

504.8.2 Duct installation. Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude more than $^{1}/_{8}$ inch (3.2 mm) into the inside of the duct.

Reason: As a result of the newer language in Section 504.8.2, this language is no longer required and will only cast doubt on Section 504.8.2.

Cost Impact: Will not increase the cost of construction
.There is no cost impact as this modification is strictly editorial in nature

M36-15 : 504.4-MCMANN4352

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Section 504.4 applies to both commercial and residential and this proposal would eliminate coverage for commercial installations.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Guy McMann, Jefferson County, Co., representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

504.4 Exhaust installation. Dryer exhaust ducts for clothes dryers shall terminate on the outside of the building and shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. Ducts shall not be joined with screws or similar fasteners that protrude more than 1/8 inch (3.2 mm) into the inside of the duct. Clothes dryer exhaust ducts shall not be connected to a vent connector, vent or *chimney*. Clothes dryer exhaust ducts shall not extend into or through ducts or plenums.

Commenter's Reason: The committee was correct in that the proposal as originally written would leave 504.4 lacking in fastening detail for commercial ducts. The correct solution is to add this minimal fastening requirement so as not to leave it up to subjective judgment as the committee recomended. This makes this section consistent with 504.8.2

M36-15

M39-15
504.4.1 (New)

Proposed Change as Submitted

Proponent : Rick Harpenau, In-O-Vate Technologies, representing Self

2015 International Mechanical Code

Add new text as follows:

504.4.1 Exhaust termination pathways. Dryer exhaust duct terminal pathways that cause a change in direction of air flow between 45 and 90 degrees shall have an area not less than 20 percent larger that the cross sectional area of the exhaust duct served. Dryer exhaust duct terminal pathways that cause a change in direction of air flow greater than 90 degrees shall have an area not less than 30 percent larger than the cross sectional area of the exhaust duct served. Exhaust duct terminal passageways shall maintain throughout an area of not less than 12.5 square inches (8,065 sq mm).

Reason: The code is very sensitive and detailed as it relates to 90 degree elbows and their respective friction loss but does not prohibit or penalize for termination hoods that grossly create back pressure, reducing the efficiency of the dryer. There are wall vents and roof vents on the market that with minimal testing equipment show clearly they create as much back pressure as 3 and 4 elbows. Short of requiring testing standards for every vent termination, the council should consider language whereby the passageway increases in size to make up for the friction causing bends. If this addition to the codes makes sense, actual calculations can be provided. Bottom line, treat terminations the same as elbows and run lengths. Video Links:

www.youtube.com/watch?v=5KnRp3eXNbk

http://youtu.be/ZL2zV1-GjdI?t=50s

Cost Impact: Will increase the cost of construction
A larger opening at the termination may cost more.

M39-15 : 504.4.1 (New)-HARPENAU4551

Public Hearing Results

Committee Action: Disapproved

Committee Reason: No justification was offered for the percentage increases in area. It would be hard to determine the direction of flow changes regarding the angles. For engineered systems, the proposed text may not apply. The proposed text should apply only to dryers that depend solely on the integral blower.

Assembly Action : None

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

~~**504.4.1 Exhaust termination pathways.** Dryer exhaust duct terminal pathways that cause a change in direction of air flow between 45 and 90 degrees shall have an area not less than 20 percent larger that the cross sectional area of the exhaust duct served. Dryer exhaust duct terminal pathways that cause a change in direction of air flow greater than 90 degrees shall have an area not less than 30 percent larger than the cross sectional area of the exhaust duct served. Exhaust duct terminal passageways shall maintain throughout an area of not less than 12.5 square inches (8,065 sq mm).~~

504.4.1.1 Increase in exhaust termination outlet size. Where the passageway of a dryer exhaust duct terminal changes direction more than 90 degrees, the open area of the outlet of the terminal shall be not less than 15 square inches (9,677 sq mm).

Commenter's Reason: The Committee indicated that this language was too confusing. The modified language coordinates with the new section 504.4.1. SMACNA lists the K factor for a 90 degree elbow as being 1 and a 130 degree elbow as being 1.2. To equal the pressure loss through the termination, the outlet open area would have to be increased by a factor of 1.2. This results in an open area of 15 square inches. The pressure drop through the termination outlet would be consistent.

M39-15

M40-15

504.6.1 (New)

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies, Inc. (JBENGINEER@aol.com)

2015 International Mechanical Code

Add new text as follows:

504.6.1 Make-up air for tight construction. Make up air shall be provided for clothes dryers where the air infiltration rate is known to be less than 0.4 air changes per hour (ACH). Make-up air shall be provided by a duct that communicates with the outdoors, a ventilated crawl space, or a ventilated attic space and such duct shall have a cross sectional area not less than that of a 4 inch round duct. The make-up air duct shall open into the room in which the clothes dryer is located. Make-up air duct inlets shall be provided with a screen having a mesh size not less than ¼ inch and not greater than ½ inch. The make-up air inlet shall be equipped with an air admitting damper that opens during the operation of the clothes dryer.

Exception: Condensing dryers shall not require make-up air.

Reason: Today homes are much more tightly constructed, creating an inadequate condition for the proper operation of a clothes dryer. The exhaust rate for a residential dryer ranges from 125 to 200 cfm with newer dryers favoring 200 cfm. When the air infiltration rate drops to less than 0.4 air changes per hour, this creates a condition of inadequate make-up for the clothes dryer. When there is inadequate ambient air to pull from, the dryer is starved and not capable of efficiently drying the clothes any longer. This extends the length of time for the dryer cycle wasting energy. It also reduce the life of the dryer since the fan is attempting to exhaust air that is not available.

Many clothes dryers are located in the basement of a home. When located in the basement, they have the available air in the basement as make-up air for exhausting the moisture. If a basement in 25 feet by 25 feet with an 8 foot ceiling, there is 5,000 cubic feet of available air. However, with an air exchange rate of 0.4, the available air for exhaust is 2000 cubic feet. That translates to 33.3 cfm of air. This means that the dryer has to draw air from other locations in order to properly operate, potentially pulling it from other unsafe sources.

Outside air is normally required by combustion air when the air infiltration rate is less than 0.4 as identified in Section G2407.5. This code change is consistent by requiring make-up air when the air exchange rate is below this value. The amount of air required for combustion air is normally less than the amount of make-up air for a dryer exhaust. An 80,000 Btu/hr furnace only requires between 16.6 and 26.6 cfm for combustion air, whereas the dryer requires between 125 and 200 cfm.

With a 4 inch duct, the make-up air can be provided at an acceptable rate. Furthermore, the fan in the clothes dryer would draw the make-up air through the make-up air duct.

A screened air admitting damper or equivalent device is necessary to prevent outside air from entering the home when the clothes dryer is not in use. The screen dimension are taken from Table 401.5 of the IMC for residential occupancies. The air admitting damper also prevents the loss of conditioned air when the dryer is not in use.

Cost Impact: Will increase the cost of construction
There is a cost to installing a make up air supply system.

M40-15 : 504.6.1 (New)-BALLANCO3702

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The more appropriate location is Section 504.8. This text belongs in the IRC, not the IMC.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

504.6.1 ~~Make-up~~ Domestic clothes dryer make-up air ~~for tight construction~~. Make up air shall be provided for domestic clothes dryers ~~where the air infiltration rate is known to be~~ located in rooms or spaces having a volume less than ~~0.4 air changes per hour (ACH)~~ 15,000 cubic feet. Make-up air shall be provided ~~by a duct~~ through an opening that ~~communicates with the outdoors, a ventilated crawl space, or a ventilated attic space and such duct shall have a cross sectional area~~ is not less than 60 square inches in area and that ~~of a 4 inch round duct. The make-up air~~ communicates directly or through a duct ~~shall open into the room in which the clothes dryer is located. Make-up air duct inlets shall be provided~~ with ~~a screen~~ indoor spaces having a ~~mesh size not less than ¼ inch and not greater than ½ inch. The make-up air inlet shall be equipped~~ volume of 15,000 cubic feet or more, the outdoors, or spaces that freely communicate with ~~an air admitting damper that opens during~~ the ~~operation of the clothes dryer~~ outdoors.

Exception: Condensing dryers shall not require make-up air.

Commenter's Reason: It was suggested that this section belongs in 504.8, however, that section is related to exhaust duct. Section 504.6 is the section for make-up air. The current requirements apply to commercial clothes dryers since domestic clothes dryer exhaust between 125 and 200 cfm.

It was clearly agreed that make up air is necessary for a clothes dryer to operate effectively and efficiently. The make-up air required is not combustion air as assumed by a few. The make-up air is needed for the clothes to be dried. The clothes dryer moves the air, either heated or not, to remove the moisture from the clothing. This air is exhausted to the outdoors. The rate of exhaust air for a dryer varies based on the length of the dryer exhaust vent.

One of the concern expressed was having a definitive number to use when a dryer

requires make-up air. Using an exhaust rate of 125 cfm and an air exchange rate of 0.5 air changes per hour, the volume of air required without make-up air would be 15,000 cubic feet. Again using the 125 cfm exhaust rate and the passive air movement of 300 feet per minute, the minimum size opening would be 60 square inches. This would allow the dryer to use air from either the adjacent spaces or from outdoors.

M40-15

M41-15 Part II

M1502.4.1

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

NOTE: PART I DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART I IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART II.

2015 International Residential Code

Revise as follows:

M1502.4.1 Material and size. Exhaust ducts shall have a smooth interior finish and shall be constructed of metal ~~having a minimum thickness of~~ not less than 0.0157 ~~inches (0.3950~~ inch(0.3950 mm) in thickness (No. 28 gage). The exhaust duct shall be round and the size shall be 4 inches (102 mm) nominal in diameter.

Reason: The code assumes that the dryer ducts are 4 inch round duct, but this not stated in the code. Square, rectangular and oval ducts all have differing flow characteristics and the exhaust system design is based on round duct. The code states 4 inch diameter which clearly indicates round duct, but it would be very clear to state that it must be round.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M41-15 Part II :
M1502.4.1-SNYDER5975

Public Hearing Results

Part II

Committee Action: Approved as Submitted

Committee Reason: Approval is based on the proponent's published reason statements.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Donald Surrena, representing NAHB (dsurrena@nahb.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

M1502.4.1 Material and size. Exhaust ducts shall have a smooth interior finish and shall be constructed of metal not less than 0.0157 inch(0.3950 mm) in thickness (No. 28 gage). The ~~exhaust~~ duct ~~shall be round and the size~~ shall be 4 inches (102 mm) nominal in diameter.

Commenter's Reason: This proposal was modified by committee action to match M41.1-15. The committees reason was, "the proposed text is redundant with the appliance manufacturer's instructions. The current text refers to "diameter" which already implies that round duct is required".
Cost Impact: This will not increase the cost of construction

M41-15 Part II

M41-15 Part Part I

504.8.1

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

504.8.1 Material and size. Exhaust ducts shall have a smooth interior finish and shall be constructed of metal ~~a minimum~~ not less than 0.016 inch (0.4 mm) ~~thick~~ in thickness. The exhaust duct shall be round and the size shall be 4 inches (102 mm) nominal in diameter.

Reason: The code assumes that the dryer ducts are 4 inch round duct, but this not stated in the code. Square, rectangular and oval ducts all have differing flow characteristics and the exhaust system design is based on round duct. The code states 4 inch diameter which clearly indicates round duct, but it would be very clear to state that it must be round.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M41-15 Part Part I : 504.8.1-SNYDER5974

Public Hearing Results

Part Part I

Committee Action: Disapproved

Committee Reason: The proposed text is redundant with the appliance manufacturer's instructions. The current text refers to "diameter" which already implies that round duct is required.

Assembly Motion: As Submitted

Online Vote Results: Failed

Support: 44.21% (84) Oppose: 55.79% (106)

Assembly Action : None

M42-15
504.8.2

Proposed Change as Submitted

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

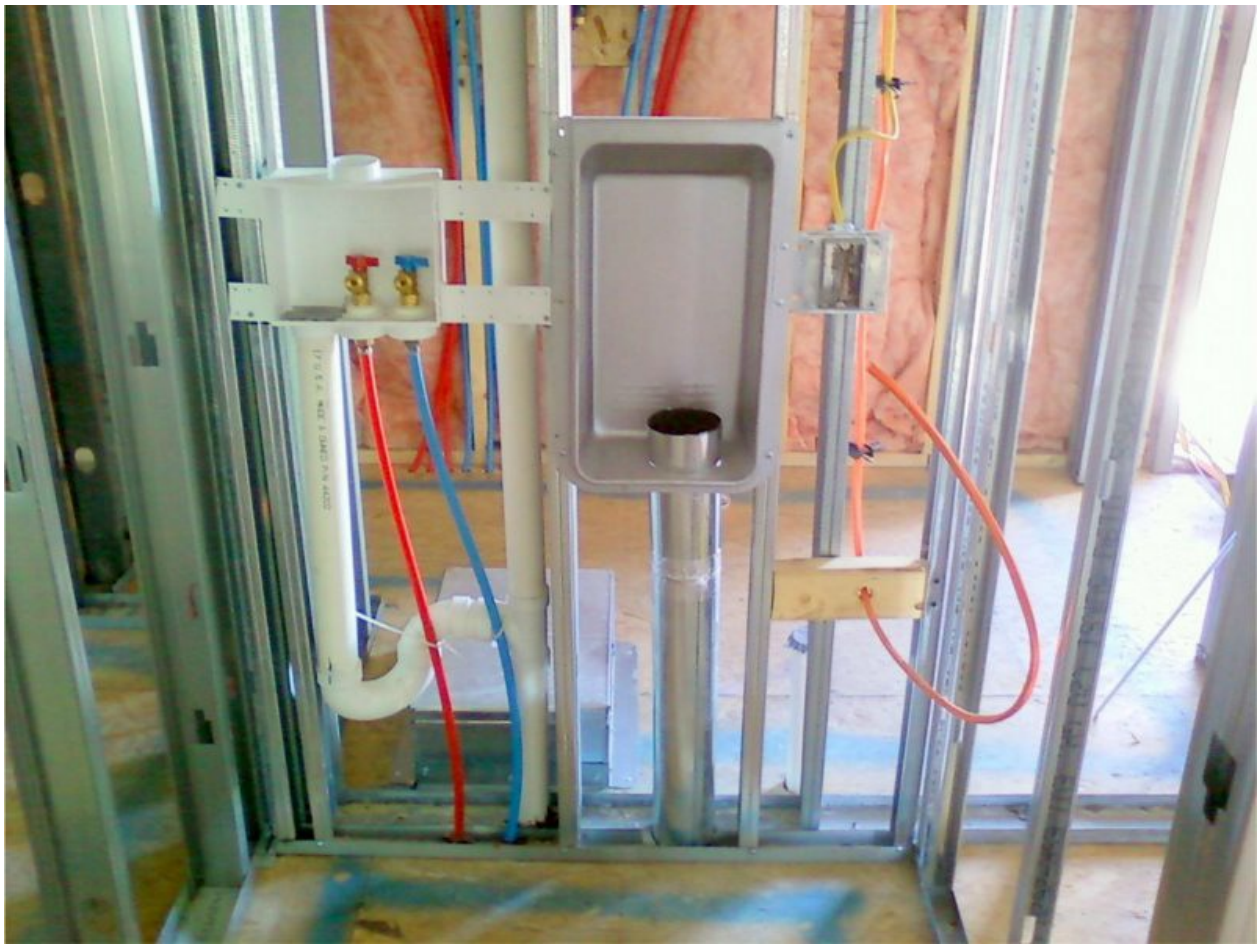
2015 International Mechanical Code

Revise as follows:

504.8.2 Duct installation. Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude more than $^{1}/_{8}$ inch (3.2 mm) into the inside of the duct. Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavitiies shall have a least dimension of not less than 4.25 inches (108 mm). Round duct shall not be deformed.

Reason: The dryer exhaust duct must remain round in shape to reduce friction loss in the duct system. The length of the duct and termination are based on friction loss for round duct, not oval duct. The length of the dryer exhaust duct would have to be reduced if the 4 inch duct was oval in shape. In addition to the reduction in efficiency, the oval pipe creates a difficult connection for the consumer to make to the dryer exhaust transition hose.

A 1 inch furring strip (1x2) can be added to a 2 x 4 stud providing the 4.25 inches of space. In most cases, this "mechanical" wall is busy with other trades (plumbing drainage and vent stacks, gas piping, electric service, laundry services and water piping). A 4.25 inch space will benefit all of the trades working within that space. The minimum space required to keep the dryer exhaust duct round is 4.125 inches. This dimension could also be referenced here, however, most contractors will simply use a furring strip on a 2 x 4 to provide the minimum spacing for the duct.




MOVIE

Examples of "mechanical walls" showing the abundance of utilities in this wall, demonstrating the need to provide more than 3.5"

Cost Impact: Will increase the cost of construction
There is an added cost of adding furring strips to a 2 x 4 wall.

M42-15 : 504.8.2-BALLANCO4116

Public Hearing Results

Committee Action: Approved as Modified

Modification:

504.8.2 Duct installation. Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude more than 1/ 8 inch (3.2 mm) into the inside of the duct. Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavitiies shall ~~have a least dimension~~ allow the installation of ~~not less than 4.25 inches (108 mm). Round~~ the duct ~~shall not be deformed~~ without deformation.

Committee Reason: Approval is based on the proponent's published reason statements. Deformed ducts can fail during cleaning operations. The manufacturer's

instructions do not address cavity size and duct deformation. The modification eliminates an exact dimension.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Donald Surrena, representing NAHB (dsurrena@nahb.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

504.8.2 Duct installation. Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude more than $^{1}/_{8}$ inch (3.2 mm) into the inside of the duct. Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such ~~cavitiies~~ cavities shall allow the installation of the duct without ~~deformation~~ reducing the cross-sectional area of the duct. Where oval duct is used, it shall have the same cross-sectional area as required for round duct and it shall be limited to installation in a wall cavity. The portion of oval duct installed in a dryer exhaust duct system shall not exceed a total of ten feet (3048mm) in length. The use of oval duct shall reduce the total allowable length of the dryer exhaust duct by five feet (1524mm).

Commenter's Reason: Reason: This modification would permit the use of oval duct in a 2x4 cavity. The restriction of length for oval duct as well as the reduction in total length insures the performance of the duct and allows optional construction methods.
Cost Impact: This will reduce the cost of construction.

M42-15

M43-15
504.8.2

Proposed Change as Submitted

Proponent : Guy McMann, Jefferson County, Colorado., representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Revise as follows:

504.8.2 Duct installation. Exhaust ducts shall be supported at ~~4 foot~~ intervals not to exceed 12 feet (~~1219~~ 3657 mm) ~~intervals and~~ and shall be secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude more than $^{1}/_{8}$ inch (3.2 mm) into the inside of the duct.

Reason: Twelve feet is what is found in the SMACNA Manual for 4 inch duct as strapping every 4 feet is unnecessarily restrictive.

Cost Impact: Will not increase the cost of construction
This proposal will actually *decrease* costs by not having to install as many hangers and the labor to do so.

M43-15 : 504.8.2-MCMANN3570

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The 12 foot interval is too great for ducts that are not mechanically fastened and rely on taped joints only. The current 4 foot interval provides stability for ducts being cleaned mechanically.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Guy McMann, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us) requests Approve as Submitted.

Commenter's Reason: The code section already states that the duct needs to be secured in place regardless of the hanger spacing. Mechanicl cleaning wont be an issue if ducts are secured in place as already required.The committee also stated this hanger spacing wont provide stability for joints that are taped only. Tape alone is not a fastening choice to begin with. The SMACNA Standard indicates a 4 inch duct can be properly installed at 12 foot intervals. Four foot intervals are over restrictive.

M44-15

505, 505.1 (New), 505.2 (New), 505.1, 505.4

Proposed Change as Submitted

Proponent : Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Mechanical Code

Revise as follows:

SECTION 505
DOMESTIC ~~KITCHEN~~ COOKING EXHAUST EQUIPMENT

Add new text as follows:

505.1 General. Domestic cooking exhaust equipment shall comply with the requirements of this section.

505.2 Domestic cooking exhaust. Where domestic cooking exhaust equipment is provided it shall comply with the following as applicable:

1. Overhead range hoods and downdraft exhaust equipment not integral with the cooking appliance shall be listed and labeled in accordance with UL 507.
2. Domestic cooking appliances with integral downdraft exhaust equipment shall be listed and labeled in accordance with UL 858 or ANSI Z21.1.
3. Microwave ovens with integral exhaust for installation over the cooking surface shall be listed and labeled in accordance with UL 923.

Revise as follows:

~~**505.1**~~ **505.3** ~~**Domestic systems.**~~ **Exhaust ducts.** ~~Where domestic range hoods and domestic appliances equipped with downdraft~~ Domestic cooking exhaust ~~are provided, such hoods and appliances~~ equipment shall discharge to the outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum or copper. Such ducts shall have smooth inner walls, shall be air tight, shall be equipped with a backdraft damper, and shall be independent of all other exhaust systems.

Exceptions:

1. In other than Group I-1 and I-2, where installed in accordance with the manufacturer's instructions and where mechanical or natural ventilation is otherwise provided in accordance with Chapter 4, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.
2. Ducts for domestic kitchen cooking appliances equipped with downdraft exhaust systems shall be permitted to be constructed of Schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:
    - 2.1. The duct shall be installed under a concrete slab poured on grade.

2.2. The underfloor trench in which the duct is installed shall be completely backfilled with sand or gravel.
2.3. The PVC duct shall extend not more than 1 inch (25 mm) above the indoor concrete floor surface.
2.4. The PVC duct shall extend not more than 1 inch (25 mm) above grade outside of the building.
2.5. The PVC ducts shall be solvent cemented.

505.4 Other than Group R. In other than Group R occupancies, where domestic cooktops, ranges, and open-top broilers are used for domestic purposes, domestic cooking ~~appliances are utilized for domestic purposes, such appliances shall be provided with domestic range hoods. Hoods and~~ exhaust systems shall be ~~in accordance with Sections 505.1 and 505.2.~~ provided.

Add new standard(s) as follows:
ANSI Z21.1 - 2010 Household Cooking Gas Appliances

UL 507 - 2014 Standard for Safety Electric Fans

Reason: The IMC currently has no criteria for exhaust hoods and downdraft equipment. This proposal accomplishes the following:
1. Includes a new charging Section 505.1 that is similar to other charging sections in the IMC.
2. New section 505.2 describes the listing standards used to investigate the various types of exhaust equipment.
3. Section 505.3 (formerly Section 505.1) was retitled "Exhaust ducts" to more accurately reflect what is covered in the section. Some edits were made to clarify the wording. No substantive changes were made to the requirements for the exhaust ducts.
4. Section 505.4 was revised to clarify the types of domestic cooking appliance that requires a domestic cooking exhaust system. Without this change an exhaust system could be required for a coffee maker, wall mounted oven, rice cooker, etc.

Cost Impact: Will increase the cost of construction
In most cases there should be no increase in costs if exhaust hoods and downdraft equipment are listed to the specified standards, which appears to be common practice.

Analysis:
A review of the standard proposed for inclusion in the code, UL 507 , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M44-15 : 505-ROBERTS5747

Public Hearing Results

Committee Action: Approved as Modified

Modification:

505.4 Other than Group R. In other than Group R occupancies, where domestic cooktops, ranges, and open-top broilers are ~~installed~~ used for domestic purposes, domestic cooking exhaust systems shall be provided.

Committee Reason: The code needs the added coverage for domestic exhaust equipment and needs to reference the relavent product standards. The modification limits the application to domestic uses as was intended in the revised text of Section 505.4, however, such distinction was lost as the section was originally revised.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

505.2 Domestic cooking exhaust. Where domestic cooking exhaust equipment is provided it shall comply with the following as applicable:

1. ~~Overhead~~ The fan for overhead range hoods and downdraft exhaust equipment not integral with the cooking appliance shall be listed and labeled in accordance with UL 507.
2. Overhead range hoods and downdraft exhaust equipment with integral fans shall comply with UL 507.
3. Domestic cooking appliances with integral downdraft exhaust equipment shall be listed and labeled in accordance with UL 858 or ANSI Z21.1.
~~3~~ 4. Microwave ovens with integral exhaust for installation over the cooking surface shall be listed and labeled in accordance with UL 923.

Commenter's Reason: This change as originally proposed exceeds the scope of UL 507. UL 507 is a standard for fans and blowers, not range hoods. Included in the scope of the standard are overhead range hoods and downdraft exhaust equipment that have integral hoods. UL 507 does not regulate stand-alone range hoods that do not have an integral fan.

These prefabricated range hoods have served the industry successfully for many years. There is no justification for removing a viable range hood. If the code change is approved as proposed, one could only install a range hood that has an integral fan. That would be overly restrictive.

The modification corrects the mistake with the original submittal. UL 507 regulates all fans used for overhead range hoods and downdraft exhaust equipment. It also addresses range hoods and downdraft exhaust equipment with integral fans.

UL 507 does not regulate range hoods, whether prefabricated or field made. Hence, it is inappropriate to reference the standard for this application.

If this modification is not accepted, the change must be denied since the reference to UL 507 exceeds the scope of the standard. This is a violation of ICC policy.

M46-15

505.2, 505.2.1 (New)

Proposed Change as Submitted

Proponent : Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Mechanical Code

Revise as follows:

505.2 Makeup air required. ~~Exhaust hood systems~~
Where one or more gas, liquid, or solid-fuel burning appliances that are neither direct vent nor use a mechanical draft venting system are located within a dwelling unit's air barrier, each exhaust system capable of exhausting in excess of 400 cfm (0.19 m^3/s) shall be mechanically or passively provided with *makeup air* at a rate approximately equal to the *exhaust air* rate. Such *makeup air* systems shall be equipped with ~~a means~~ not less than one damper that complies with Section 505.2.1.

> **Exception:** Makeup air is not required for exhaust systems installed for the exclusive purpose of ~~closure~~ space cooling and ~~shall~~ intended to be ~~automatically controlled to start and operate simultaneously with the exhaust system.~~ operated only when windows or other air inlets are open.

Add new text as follows:

505.2.1 Makeup air dampers. Where makeup air is required by Section 505.2, such dampers shall comply with this section. Dampers shall be gravity or barometric dampers or electrically operated dampers that automatically open when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced. Gravity or barometric dampers shall not be used in passive makeup air systems except where the dampers are rated to provide the design makeup airflow at a pressure differential of 0.01 in. w.c. (3 Pa) or less.

Reason:
Backdrafting of combustion appliances typically presents the greatest danger associated with depressurizing a space. Field tests have confirmed that naturally vented combustion appliances (i.e., those that are not mechanically vented or direct-vent) are the most susceptible to depressurization, and measures should be taken to provide makeup air (MUA) for large exhaust appliances when such appliances are located within the dwelling unit's air barrier. ASHRAE 62.2, the consensus standard for Ventilation and Acceptable Indoor Air Quality in residential dwelling units, does not require MUA when combustion appliances are mechanically vented or are direct-vent. The ASHRAE 62.2 committee recently reviewed the 62.2 section requiring MUA, and the general consensus (no vote taken) was a reaffirmation that the MUA requirement should not apply to mechanically vented or direct-vent combustion appliances, due to lack of data to substantiate their susceptibility to backdrafting.

This proposal would relax the MUA requirement in the IMC for dwelling units by aligning it more closely with ASHRAE 62.2. Similar changes have been made to this section in Florida's and Virginia's adoptions of the IRC, which has a similar requirement to the IMC.

The proposal introduces a new section to address MUA dampers specifically, with the second and third sentences in Section 505.2.1 taken verbatim from the 2015 IRC. The last sentence introduces a new requirement for gravity or barometric dampers. It makes no sense to design a system to provide MUA if the damper does not open before the combustion appliance starts spilling. So, the new requirement is intended to ensure that when MUA is required, any gravity or barometric damper used to provide MUA shall engage at the pressure differential above which naturally drafted combustion appliances can be expected to backdraft (3 Pa, based on an acceptable 5%-20% failure rate across all outdoor conditions)[1]. This proposed requirement only applies to gravity or barometric dampers in "passive" MUA systems, which are those provide MUA without the assistance of a fan. Gravity or barometric dampers in "active" MUA systems are excluded from this requirement because we assume that the fan will create a sufficient pressure differential to open the damper.

Bibliography:

1. Bohac, D., et al. (2002). Ventilation and Depressurization Information for Houses Undergoing Remodeling. Accessed on Dec 5, 2014 at: http://www.mncee.org/getattachment/eedb1afc-f50e-4833-b450-d52233f58ce0/.

Cost Impact: Will not increase the cost of construction
This proposal is expected to reduce construction costs by reducing the number of scenarios requiring makeup air for kitchen exhaust.

M46-15 : 505.2.1 (New)-MOORE4887

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Section 505.2 is under domestic kitchens. Space cooling and the exception are unrelated to Section 505. If electric appliances are used, they are no longer covered for makeup air. The code needs a holistic instead of a piece-meal approach to air balance and makeup air. The proposal elimantes the system control requirements and may relax the requirements for exhaust.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Mike Moore, Newport Ventures, representing Broan-NuTone (mmoore@newportventures.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

505.2 Makeup air required. Where one or more gas, liquid, or solid-fuel burning appliances that are neither direct vent nor use a mechanical draft venting system are located within a dwelling unit's air barrier, ~~each~~ kitchen exhaust ~~system~~ systems capable of exhausting in excess of 400 cfm (0.19 m^3/s) shall be mechanically or passively provided with *makeup air* at a rate approximately equal to the *exhaust air* rate. Such *makeup air* systems

shall be equipped with not less than one damper that complies with Section 505.2.1.

> ~~**Exception:** Makeup air is not required for exhaust systems installed for the exclusive purpose of space cooling and intended to be operated only when windows or other air inlets are open.~~

Commenter's Reason: The IRC mechanical committee unanimously approved a companion proposal to this one, so approval of this proposal will align the domestic kitchen range hood makeup air requirements of the IRC and IMC. Based on the IMC committee's input, this comment removes the exception for exhaust systems intended for space cooling. The committee noted that this section only pertains to domestic kitchen exhaust, so exempting something that is not addressed by the section is not necessary.

The committee rightly surmised that if electric appliances are not used, no makeup air requirements would exist for range hoods. This is correct, and it is the intention of this proposal to waive the kitchen exhaust makeup air requirements for this situation as well as for others that provide assurance that backdrafting will not occur during operation of the kitchen exhaust system. We are assuming that the primary purpose of requiring makeup air for kitchen exhaust systems is to ensure that they do not backdraft combustion appliances within a dwelling unit. This assumption is aligned with ASHRAE 62.2, which provides similar exemptions for makeup air requirements. A dwelling unit that has all electric appliances, direct vent appliances, or has located any non-direct vent combustion appliances outside of its air barrier is not expected to experience backdrafting of combustion gases during the operation of the kitchen exhaust system. So, these cases should be exempt from makeup air requirements.

The proposal and comment permit the use of gravity dampers for makeup air, as is already permitted in the IRC. However, these dampers may only be used if they meet a new minimum performance spec to ensure that they are designed to open before dangerous levels of depressurization are reached with respect to combustion appliances.

Approval of the proposal as modified will provide for the design of domestic kitchen exhaust makeup air to achieve a minimum acceptable level of life safety while reducing costs.

M46-15

M50-15
506.3.2.5

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

506.3.2.5 Grease duct test. Prior to the use or concealment of any portion of a grease duct system, a leakage test shall be performed. Ducts shall be considered to be concealed where installed in shafts or covered by coatings or wraps that prevent the ductwork from being visually inspected on all sides. The permit holder shall be responsible to provide the necessary *equipment* and perform the grease duct leakage test. A ~~light~~ water test shall be performed to determine that all welded and brazed joints are liquid tight.

A ~~light~~ water test shall be performed by passing ~~a lamp having a power rating of not less than 100 watts~~ grease duct pressure washing equipment through the entire section of ductwork to be tested and visually inspecting for leakage of water. The ~~lamp~~ pressure washing equipmnent shall be ~~open so as to emit light equally in all directions perpendicular to the duct walls~~ of a type used for professionally cleaning commercial kitchen grease ducts. A test shall be performed for the entire duct system, including the hood-to-duct connection. ~~The~~ Where the duct work ~~shall be permitted to be~~ is tested in sections, ~~provided that every~~ no joint ~~is tested~~ shall be excluded from testing. For *listed* factory-built grease ducts, this test shall be limited to duct joints assembled in the field and shall exclude factory welds.

Reason: The light test required currently has many deficiencies. Openings in overlapped joint welds would not allow light to reach the observer. Pinhole leaks may not allow enough light through to be observed. The faults in the joints could be on sides not observed during the test and some duct sides may not be visible at all when installed. How fast can the lamp be pulled through the duct? What if the ambient light is bright or it is sunlight? What are the chances that a light test will disclose any, much less, all of the faults in joints? A test with pressurized duct cleaning equipment will expose all faults in the joints by visible water leakage.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because the proposed water test will require more labor and equipment than the currently required light test.

M50-15 : 506.3.2.5-SNYDER3263

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal does not state the duration, pressure or temperature requirements for the water test. Light tests are used successfully. Power washing should be only an option, not the required test. This is overkill for short duct runs. If the duct gets wet during the test, it will impossible to find the leaks.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Steven Ferguson, representing American Society of Heating Refrigerating and Air-Conditioning Engineers (sferguson@ashrae.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

506.3.2.5 Grease duct test. Prior to the use or concealment of any portion of a grease duct system, a leakage test shall be performed in accordance with Section 506.3.2.5.1 or 506.3.2.5.2, or an approved equivalent test shall be performed. Ducts shall be considered to be concealed where installed in shafts or covered by coatings or wraps that prevent the ductwork from being visually inspected on all sides. The permit holder shall be responsible to provide the necessary *equipment* and perform the grease duct leakage test. ~~A water test shall be performed to determine that all welded and brazed joints are liquid tight.~~
~~A water test shall be performed by passing grease duct pressure washing equipment through the entire section of ductwork to be tested and visually inspecting for leakage of water. The pressure washing equipmnent shall be of a type used for professionally cleaning commercial kitchen grease ducts. A test shall be performed for the entire duct system, including the hood-to-duct connection. Where the duct work is tested in sections, no joint shall be excluded from testing. For *listed* factory-built grease ducts, this test shall be limited to duct joints assembled in the field and shall exclude factory welds.~~

506.3.2.5.1 Grease duct light test. The light test shall be performed by passing a lamp having a power rating of not less than 100 W through the entire section of ductwork to be tested. The lamp shall be open so as to emit light equally in all directions perpendicular to the duct walls. Light from the duct interior shall not be visible through any exterior surface of the duct during the test.

506.3.2.5.2 Grease duct water pressure test. The water pressure test shall be performed by use of a pressure washer operating at a

pressure of not less than 1500 psi (10 342 kPa) and simulating cleaning operations. The water shall be applied directly to all areas to be tested. Water applied to the duct interior shall not be visible on any exterior surface of the duct during the test. For *listed* factory-built grease ducts, this test shall be limited to duct joints assembled in the field and shall exclude factory welds.

Commenter's Reason: A grease duct leakage test is important and the code mandates such tests. However, limiting the test to one method does not recognize the successful use of modified light and air pressure test methods that are being applied successfully in some code jurisdictions. In some installations such as exterior duct systems installed during freezing weather conditions the use of pressurized water may not be practical or safe. Delaying construction while waiting for changes in the weather may also not be practical. In these situations an alternate light test, pressure test or other test acceptable to the AHJ is needed.
For many grease duct installations that use short runs of accessible duct the inspector may find light or air pressure tests as effective as water but at a much lower cost. In some cases, especially those difficult to access for inspection a combination of test methods may be most practical using one for initial test and others to confirm successful repair of welds or other joints where leaks were found during the initial test. One may be a better actual test in the field. A water test shouldn't be the only viable option.

M50-15

M51-15

202 (New), 506.5.2 (New)

Proposed Change as Submitted

Proponent : Shawn Strausbaugh, Arlington County, VA representing the VA Plumbing and Mechanical Officials Association (VPMIA) and the VA Building Code Officials Association (VBCOA) Guy McMann, Jefferson County CO, representing the CO Association of Plumbing and Mechanical Officials (CA, representing Arlington County, VA representing the VA Plumbing and Mechanical Inspectors Association (VPMIA) and the VA Building Code Officials Association (VBCOA) (sstrausbaugh@arlingtonva.us)

2015 International Mechanical Code

Add new definition as follows:

SECTION 202 DEFINITIONS

POLLUTION CONTROL UNIT (PCU) Manufactured equipment that is installed in a grease exhaust duct system for the purpose of extracting smoke, grease particles, and odors from the exhaust flow by means of a series of filters.

Add new text as follows:

506.5.2 Pollution Control Units. Pollution control units shall be installed in accordance with the manufacturer's installation instructions and shall be in accordance with all of the following:

1. Pollution control units shall be listed and labeled in accordance with UL 1978.
2. Fans serving pollution control units shall be listed and labeled in accordance with with UL 762.
3. Pollution control units shall be mounted and secured in accordance with the manufacturer's installation instructions and the International Building Code.
4. Pollution control units located indoors shall be listed and labeled for such use. Where enclosed duct systems, as required by Section 506.3.11, are connected to a pollution control unit, such unit shall be located in a room or space having the same fire-resistance rating as the duct enclosure. Access shall be provided for servicing and cleaning of the unit. The space or enclosure shall be ventilated in accordance with the manufacturer's installation instructions.
5. A clearance of not less than 18 inches (457 mm) shall be maintained between the pollution control unit and combustible material.
6. Roof mounted pollution control units shall be listed for exterior installation and shall be mounted not less than 18 inches (457 mm) above the roof.

7. Exhaust outlets for pollution control units shall be in accordance with Section 506.3.13.
8. An airflow differential pressure control shall be provided to monitor the pressure drop across the filter sections of a pollution control unit. When the airflow is reduced below the design velocity, the airflow differential pressure control shall activate a visual alarm located in the area where cooking operations occur.
9. Pollution control units shall be provided with a factory installed fire suppression system.
10. Service space shall be provided in accordance with the manufacturer's instructions for the pollution control unit and the requirements of Section 306.
11. Wash down drains shall discharge through a grease interceptor and shall be sized for the flow. Drains, shall be sealed with a trap or other approved means to prevent air bypass. Where a trap is utilized it shall have a seal depth that accounts for the system pressurization and evaporation between cleanings.
12. Protection from freezing shall be provided for the water supply and fire suppression systems where such systems are subject to freezing.
13. Duct connections to pollution control units shall be in accordance with Section 506.3.2.3. Where water splash or carryover can occur in the transition duct as a result of a washing operation, the transition duct shall slope downward toward the cabinet drain pan for a length not less than 18 inches (457 mm). Ducts shall transition to the full size of the units inlet and outlet openings.
14. Extra heavy duty appliance exhaust systems shall not be connected to pollution control units except where such units are specifically designed and listed for use with solid fuels.
15. Pollution control units shall be maintained in accordance with the manufacturer's instructions.

Reason: Pollution Control Units have been manufactured by numerous companies for several years. The desire to limit the amount of smoke, grease, and other particulate at the exhaust outlets of commercial cooking appliances has driven the use of these units as numerous entities are requiring these types of units to be installed. These unit and there minimum construction and installation standards need to be addressed in the mechanical code.

Cost Impact: Will increase the cost of construction
The cost of construction of these specific units may be increased by manufacturers if their current unit did not meet the minimum requirements per this new section. As we do not represent manufacturers it is difficult to substantiate if this proposed change will have create such a cost increase or not

M51-15 : 506.5.2 (New)-STRAUSBAUGH3640

Public Hearing Results

Committee Action: Approved as Modified

Modification:

506.5.2 Pollution Control Units. Where provided, ~~Pollution~~ pollution control units shall be installed in accordance with the manufacturer's installation instructions and shall be in accordance with all of the following:

1. Pollution control units shall be listed and labeled in accordance with UL 1978.
2. Fans serving pollution control units shall be listed and labeled in accordance with with UL 762.
3. Pollution control units shall be mounted and secured in accordance with the manufacturer's installation instructions and the International Building Code.
4. Pollution control units located indoors shall be listed and labeled for such use. Where enclosed duct systems, as required by Section 506.3.11, are connected to a pollution control unit, such unit shall be located in a room or space having the same fire-resistance rating as the duct enclosure. Access shall be provided for servicing and cleaning of the unit. The space or enclosure shall be ventilated in accordance with the manufacturer's installation instructions.
5. A clearance of not less than 18 inches (457 mm) shall be maintained between the pollution control unit and combustible material.
6. Roof mounted pollution control units shall be listed for exterior installation and shall be mounted not less than 18 inches (457 mm) above the roof.
7. Exhaust outlets for pollution control units shall be in accordance with Section 506.3.13.
8. An airflow differential pressure control shall be provided to monitor the pressure drop across the filter sections of a pollution control unit. When the airflow is reduced below the design velocity, the airflow differential pressure control shall activate a visual alarm located in the area where cooking operations occur.
9. Pollution control units shall be provided with a factory installed fire suppression system.
10. Service space shall be provided in accordance with the manufacturer's instructions for the pollution control unit and the requirements of Section 306.
11. Wash down drains shall discharge through a grease interceptor and shall be sized for the flow. Drains, shall

be sealed with a trap or other approved means to prevent air bypass. Where a trap is utilized it shall have a seal depth that accounts for the system pressurization and evaporation between cleanings.

12. Protection from freezing shall be provided for the water supply and fire suppression systems where such systems are subject to freezing.
13. Duct connections to pollution control units shall be in accordance with Section 506.3.2.3. Where water splash or carryover can occur in the transition duct as a result of a washing operation, the transition duct shall slope downward toward the cabinet drain pan for a length not less than 18 inches (457 mm). Ducts shall transition to the full size of the units inlet and outlet openings.
14. Extra heavy duty appliance exhaust systems shall not be connected to pollution control units except where such units are specifically designed and listed for use with solid fuels.
15. Pollution control units shall be maintained in accordance with the manufacturer's instructions.

Committee Reason: Approval was based on the proponent's published reason statements. These units are being installed today and need coverage. The modification removes any ambiguity about whether these units are required to be installed.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Steven Ferguson, representing American Society of Heating Refrigerating and Air-Conditioning Engineers (sferguson@ashrae.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

506.5.2 Pollution Control Units. Where provided, pollution control units shall be installed in accordance with the manufacturer's installation instructions and shall be in accordance with all of the following:

1. Pollution control units shall be listed and labeled in accordance with applicable requirements of UL 1978 and UL710.
2. Fans serving pollution control units shall be listed and labeled in

accordance with with UL 762.

3. Pollution control units shall be mounted and secured in accordance with the manufacturer's installation instructions and the International Building Code.
4. Pollution control units located indoors shall be listed and labeled for such use. Where enclosed duct systems, as required by Section 506.3.11, are connected to a pollution control unit, such unit shall be located in a room or space having the same fire-resistance rating as the duct enclosure. Access shall be provided for servicing and cleaning of the unit. The space or enclosure shall be ventilated in accordance with the manufacturer's installation instructions.
5. A clearance of not less than 18 inches (457 mm) shall be maintained between the pollution control unit and combustible material except where otherwise listed for reduced clearance to combustible materials.
6. Roof mounted pollution control units shall be listed for exterior installation and shall be mounted not less than 18 inches (457 mm) above the roof except where otherwise listed for reduced clearance to combustible materials.
7. Exhaust outlets for pollution control units shall be in accordance with Section 506.3.13.
8. An airflow differential pressure control shall be provided to monitor the pressure drop across the filter sections of a pollution control unit. When the airflow is reduced below the design velocity, the airflow differential pressure control shall activate a visual alarm located in the area where cooking operations occur.
9. Pollution control units shall be provided with ~~a factory~~ an approved automatic fire extinguishing system installed in accordance with the fire ~~suppression~~ extinguishing system manufacturer's instructions.
10. Service space shall be provided in accordance with the manufacturer's instructions for the pollution control unit and the requirements of Section 306.
11. Wash down drains shall discharge through a grease interceptor and shall be sized for the flow. Drains, shall be sealed with a trap or other approved means to prevent air bypass. Where a trap is utilized it shall have a seal depth that accounts for the system pressurization and evaporation between cleanings.
12. Protection from freezing shall be provided for the water supply and fire suppression systems where such systems are subject to freezing.
13. Duct connections to pollution control units shall be in accordance with Section 506.3.2.3. Where water splash or carryover can occur in the transition duct as a result of a washing operation, the transition duct shall slope downward toward the cabinet drain pan for a length not less than 18 inches (457 mm). Ducts shall transition to the full size of the units inlet and outlet openings.
14. Extra heavy duty appliance exhaust systems shall not be connected to pollution control units except where such units are specifically designed and listed for use with solid fuels.
15. Pollution control units shall be maintained in accordance with the manufacturer's instructions.

Commenter's Reason: Addition of UL 710 in requirement 1 – UL 710 is a needed additional reference for this type of application
Addition to requirements 5 and 6- this is a new requirement in UL 710, so the addition would make the proposal consistent with UL710.

Addition to requirement 9 – this is to be consistent with NFPA 96 Section 9.3.3. The fire suppression system does not necessarily need to be factory supplied as several manufacturers will provide units that are pre-piped and provide a connection point for the fire suppression propellant and agents – some fire suppression chemicals require HAZMAT treatment and as a result are provided in the field rather than shipped from the manufacturer.

Public Comment 2:

Proponent : Shawn Strausbaugh, representing Arlington County, VA representing VA Plumbing and Mechanical Inspectors Association, VA Building Code Official Association (sstrausbaugh@arlingtonva.us) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

506.5.2 Pollution Control Units. ~~Where provided,~~ The installation of pollution control units shall be ~~installed~~ in accordance with the manufacturer's installation instructions and ~~shall be in accordance with~~ all of the following:

1. Pollution control units shall be listed and labeled in accordance with UL 1978.
2. Fans serving pollution control units shall be listed and labeled in accordance with with UL 762.
3. Pollution control units shall be mounted and secured in accordance with the manufacturer's installation instructions and the International Building Code.
4. Pollution control units located indoors shall be listed and labeled for such use. Where enclosed duct systems, as required by Section 506.3.11, are connected to a pollution control unit, such unit shall be located in a room or space having the same fire-resistance rating as the duct enclosure. Access shall be provided for servicing and cleaning of the unit. The space or enclosure shall be ventilated in accordance with the manufacturer's installation instructions.
5. A clearance of not less than 18 inches (457 mm) shall be maintained between the pollution control unit and combustible material.
6. Roof mounted pollution control units shall be listed for exterior installation and shall be mounted not less than 18 inches (457 mm) above the roof.
7. Exhaust outlets for pollution control units shall be in accordance with Section 506.3.13.
8. An airflow differential pressure control shall be provided to monitor the pressure drop across the filter sections of a pollution

control unit. When the airflow is reduced below the design velocity, the airflow differential pressure control shall activate a visual alarm located in the area where cooking operations occur.

9. Pollution control units shall be provided with a factory installed fire suppression system.
10. Service space shall be provided in accordance with the manufacturer's instructions for the pollution control unit and the requirements of Section 306.
11. Wash down drains shall discharge through a grease interceptor and shall be sized for the flow. Drains, shall be sealed with a trap or other approved means to prevent air bypass. Where a trap is utilized it shall have a seal depth that accounts for the system pressurization and evaporation between cleanings.
12. Protection from freezing shall be provided for the water supply and fire suppression systems where such systems are subject to freezing.
13. Duct connections to pollution control units shall be in accordance with Section 506.3.2.3. Where water splash or carryover can occur in the transition duct as a result of a washing operation, the transition duct shall slope downward toward the cabinet drain pan for a length not less than 18 inches (457 mm). Ducts shall transition to the full size of the units inlet and outlet openings.
14. Extra heavy duty appliance exhaust systems shall not be connected to pollution control units except where such units are specifically designed and listed for use with solid fuels.
15. Pollution control units shall be maintained in accordance with the manufacturer's instructions.

Commenter's Reason: The committee's modification of adding " Where provided" creates additional language that is not needed as there is not a charging section requiring the installation of PCU units. If the "where provided" language is needed in this new section then this language would need to be added to numerous code sections for equipment that is not required by the code to be installed. We have rewritten the first sentence in this new code section to make it clear that these pieces of equipment are not required however if they are installed they must conform to the manufactures installation instructions and the rest of the requirements under this new section.

M51-15

M56-15
507.6.1

Proposed Change as Submitted

Proponent : Guy McMann, Jefferson County, Colorado., representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Revise as follows:

507.6.1 Capture and containment test. The permit holder shall verify capture and containment performance of the exhaust system. This field test shall be conducted with all appliances under the hood at operating temperatures, with all sources of outdoor air providing *makeup air* for the hood operating and with all sources of recirculated air providing conditioning for the space in which the hood is located operating. Capture and containment shall be verified visually by observing smoke or steam produced by actual or simulated cooking, such as ~~with~~ that provided by smoke ~~candles, smoke puffers, and similar means~~ generators.

Reason: The term "smoke generators" includes all forms of smoke producing products and cleans up the sectoin a little bit.

Cost Impact: Will not increase the cost of construction
There will be no addional cost as this in only an editorial modification and clarification.

M56-15 : 507.6.1-MCMANN3574

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Approval was based on the proponent's published reason statements.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Steven Ferguson, representing American Society of Heating Refrigerating and Air-Conditioning Engineers (sferguson@ashrae.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

507.6.1 Capture and containment test. The permit holder shall verify

capture and containment performance of the exhaust system. This field test shall be conducted with all appliances under the hood at operating temperatures, with all sources of outdoor air providing *makeup air* for the hood operating and with all sources of recirculated air providing conditioning for the space in which the hood is located operating. Capture and containment shall be verified visually by observing smoke or steam produced by actual or simulated cooking, such as that provided by smoke ~~generators~~ candles and smoke puffers. Smoke bombs shall not be used.

Commenter's Reason: ASHRAE recommends disapproval and a clarification as a modification. The term generator is too generic. Generators do not differentiate between smoke candles and smoke bombs. The source of Section 507.6.1 is ASHRAE Standard 154, which prohibits smoke bombs because of the large volume it produces which does not represent an actual cooking process. We are ok with the concept of cleaning up of the language, however, we want to be clear that smoke bombs should not be used for this type of test, and the currnet proposal permits the use of smoke bombs.

M56-15

M58-15
510.8

Proposed Change as Submitted

Proponent : Peter Levitt, Sternvent, representing Sternvent (plevitt@sternvent.com)

2015 International Mechanical Code

Revise as follows:

510.8 Suppression required. Ducts shall be protected with an *approved* automatic fire suppression system installed in accordance with the *International Building Code*. Dust collection system ducts shall be protected by a spark detection and extinguishing system.

Exceptions:

1. An approved automatic fire suppression system shall not be required in ducts conveying materials, fumes, mists and vapors that are nonflammable and noncombustible under all conditions and at any concentrations.
2. Automatic fire suppression systems shall not be required in metallic and noncombustible, nonmetallic exhaust ducts in semiconductor fabrication facilities.
3. An *approved* automatic fire suppression system shall not be required in ducts where the largest cross-sectional diameter of the duct is less than 10 inches (254 mm).
4. For laboratories, as defined in Section 510.1, automatic fire protection systems shall not be required in laboratory hoods or exhaust systems

Reason: Many designers of dust collection systems are not familiar with what type of fire supression system is suitable for a dust collection system duct and the asociated dust particle convening velocity of 3000-5000 feet per minute. If a source of ignition such as a spark enters a dust collection system, burning embers will travel towards the dust collector. Due to the small mass of the embers and high transport velocity in the duct, there will not be enough heat generated to activate a thermocouple sprinkler head. A photocell spark detection and extinguishing system is typically used. This technolgy is defined and recoginzed by NFPA in #69 and recognized in #664.

Bibliography:

NFPA 69

NFPA 664

and

NFPA Guide to Combustible Dusts

Authors; Walter Frank & Samuel Rodgers

Editor; Guy Colonna

2012

Pages 171-178

Cost Impact: Will increase the cost of construction

While a thermocuple sprinkler head has a cost of aprox $100 and the cost of the spark detection system is $5,000-$8,000, the spark detection system will prevent a fire or explosion in the dust collector and as a result prevent property loss, injury & loss of life, whereas a thermocouple head will be ineffective in this application.

M58-15 : 510.8-LEVITT5228

Public Hearing Results

Committee Action: Disapproved

Committee Reason: No criteria is proposed for the spark detection system. The proposal could be interpreted that fire suppression is not required. Other methods of protection could be used besides that proposed. The exceptions might not apply if a spark detection system is required.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Peter Levitt, representing self (plevitt@sternvent.com) requests Approve as Submitted.

Commenter's Reason: M 58-15

Peter Levitt's reply to committee comments;

1. The criteria that spark detection & extinguishing system should be the method of fire suppression for dust collection system ducts 10" dia & larger is that many people reading section 510.8 believe that a traditional sprinkler head should be used. A sprinkler head is not suitable in a high velocity duct. A dust collection system duct velocity is 4000 feet per minute. The beginning of a fire in the duct is sparks & burning embers, which do not generate enough heat to trigger a traditional sprinkler head. This is not common knowledge. AHJ's are approving traditional sprinkler heads in dust collector ducts, because they are not aware that a sprinkler head, by itself is ineffective in certain applications, such as dust collection systems. NFPA 652, 654 & 664 require spark/ember detectors that activate a water spray.
2. The proposal states that there should be detection & extinguishing. The extinguishing is the fire suppression.
3. I am not aware of another effective method of fire suppression for a dust collection duct.
4. The proposed text is compatible with each of the four exceptions currently in the code. I do not see any conflict.

Peter Levitt is the product manager of Sternvent, a manufacturer of dust collectors. Sternvent does not manufacture spark detection & extinguishing systems. Peter is a committee member of NFPA 664 & 484

M58-15

M60-15
511.1.3

Proposed Change as Submitted

Proponent : Peter Levitt, Sternvent, representing Sternvent (plevitt@sternvent.com)

2015 International Mechanical Code

Revise as follows:

511.1.3 Conveying systems exhaust discharge. An exhaust system shall discharge to the outside of the building either directly by flue or indirectly through the bin or vault into which the system discharges, except where the contaminants have been removed. Exhaust system discharge shall be permitted to be recirculated provided that the solid particulate has been removed at a minimum efficiency of 99.9 percent at 10 microns (10.01 mm) and where flammable vapors are present in the exhaust flow, such vapor concentrations are less than 25 percent of the LFL, ~~and *approved equipment* is used to monitor~~ as determined by a hazard analysis. Where flammable vapor concentrations are greater than 25% of the ~~vapor concentration.~~ LFL, the exhaust system discharge shall not be recirculated.

Reason: The current wording of section 511.1.3 requires vapor monitoring equipment for all dust collection systems that recirculate the filtered air back to the bulding, *regardless* if vapors are *ever present*. Dust collection system air streams rarley include flamable or non-flamable vapors. Vapors are not a part of the process or created by cutting wood, grinding metals, conveying chemical or food products, etc. Vapors are more likely to be part of the air stream for refuse conveying.
The current requirement for vapor monitoring equipment for all dust collectors that recirculate the air seems to be *overly burdensome*. I beleve the current text first appeared in the 2009 edition.

Some code enforcers who are familar with section 511.1.3 have been requiring flamable vapor detection systems for woodworing shops in schools, maintenance and comercial facilities, that do not have flamable vapors, because of the IMC requirement.

Flammable vapor detection systems are typicaly used in industrial processes where there is the potential for flammable vapors to exist in the work area and there is also a potential ignition source. Some aplications include; printing, paint manufacturing, commercial painting and storage areas.

Cost Impact: Will not increase the cost of construction

A typical flammable vapor detection system cost $10,000-$15,000.

End users, who do not have flammable vapors in their air stream or have flammable vapors that have a concentration of less than 25% of the LFL and need to recirculate the filtered air from the dust collection system, will no longer need to purchase a flammable vapor detection system and therefore save $10,000-$15,000.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The current code requirement is not overly burdensome and is needed for life safety. What is being conveyed in the system can change as operations change. Discharging the exhaust to the outdoors is an alternative to the current code requirements.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Peter Levitt, representing self (plevitt@sternvent.com) requests Approve as Submitted.

Commenter's Reason: M 60-15

Peter Levitt's reply to committee comments;

- Section 511 Dust, Stock and Refuse Conveying Systems is applicable to woodworking dust collection systems. Woodworking shops & school wood shops do not typically contain flammable vapors. The requirement for a flammable vapor detection (FVD) system to be included with all exhaust systems that recirculate the air back to the building (typically a dust collection system), was added to 511.1.3 two revision cycles back.

- During the past five years, Sternvent has received engineer's specifications for two high school wood shop dust collection systems that specified a flammable vapor detection system, because it is required by IMC511.1.3. There are rarely, if ever, flammable vapors in wood shops. However, the code requires FVD system if the air is to be recirculated, regardless if flamable vapors are or would likey ever be present.

- If flammable vapors were common in wood shops or other manufacturing facilities, then the room lighting & machine motors would have to be explosion proof NEMA 7 design for code compliance. Rarely is there a need for this, because there are rarely, if ever, flammable vapors present.

- The two FVD manufacturers I have contacted were not willing to provide their equipment unless it was an industrial setting & vapors were know to exist. They need to know what vapors will be present & in what concentration.

- A typical FVD system cost $15,000. This is greater than the cost of many dust collectors.

- Flammable vapor detection equipment is designed for use with industrial ovens & dryers, when flammable vapors are normally present. Requiring FVD systems for all dust collectors that recirculate the filtered air back to the building does not seem to have any practical or scientific basis.

- Requiring ALL ventilation systems for dust, stock & refuse to have a FVD system, would be similar to requiring that a carbon monoxide detection system always be included as well.

- I have been designing & selling dust collection systems for over thirty tears. I am not aware of any fire loss history due to a dust collector & flammable vapors.

- Although, discharging the filtered air exhaust to the outdoors is an alternative & does not require a FVD, as the code is currently written, this is not an acceptable alternative for most customers because of the energy loss of heated or cooled air. Our customers have mandates to be green.

- My recommendation is that IF flammable vapors are present or likely could be present, then the air should not be recirculated back to the building. There is no need to mandate that every time the air is recirculated to the building for a dust, stock or refuse conveying system, a flammable vapor detection system is required.

- Luckily, few AHJ's and fire protection engineers have been reading and requiring the FVD called for in 511.1.3. (We have only had two requests in five years.) It is not good for any of us to have a code requirement which appears to be too broad. Thank you for your time and consideration.

Peter Levitt is the product manager of Sternvent, a manufacturer of dust collectors. Sternvent does not manufacture spark detection & extinguishing systems. Peter is a committee member of NFPA 664 & 484

M60-15

M62-15
601.5

Proposed Change as Submitted

Proponent : Guy McMann, Jefferson County Colorado, representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Revise as follows:

601.5 Return air openings. Return air openings for heating, ventilation and air-conditioning systems shall comply with all of the following:

1. Openings shall not be located less than 10 feet (3048 mm) measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space.
2. Return air shall not be taken from a hazardous or insanitary location or a refrigeration room as defined in this code.
3. The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space.
4. Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturer's installation instructions, ACCA Manual D or the design of the registered design professional.
5. Return air taken from one dwelling unit shall not be discharged into another dwelling unit.
6. Taking return air from a crawl space shall not be accomplished through a direct connection to the return side of a forced air furnace. Transfer openings in the crawl space enclosure shall not be prohibited.
7. Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic.

   Exceptions:

   1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen and are located not less than 10 feet (3048 mm) from the cooking appliances.
   2. Dedicated forced air systems serving only the garage shall not be prohibited from obtaining return air from the garage
8. <u>Return air shall not be taken from indoor swimming pool enclosures and associated deck areas except where such spaces are dehumidified.</u>

Reason: It is not desirable to pull return air from swimming pool areas due to the affects it would have on the system from humidity and chemical odors associated with such spaces. A dedicated system would be required or a combination of supply and exhaust or the air should be dehumidified.

Cost Impact: Will not increase the cost of construction
No cost unless the air is treated.

M62-15 : 601.5-MCMANN3834

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposed text would prohibit the installation of a dedicated HVAC system for the pool area.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Steven Ferguson, representing American Society of Heating Refirgerating and Air Conditioning Engineers (sferguson@ashrae.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

601.5 Return air openings. Return air openings for heating, ventilation and air-conditioning systems shall comply with all of the following:

1. Openings shall not be located less than 10 feet (3048 mm) measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space.
2. Return air shall not be taken from a hazardous or insanitary location or a refrigeration room as defined in this code.
3. The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space.
4. Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturer's installation instructions, ACCA Manual D or the design of the registered design professional.
5. Return air taken from one dwelling unit shall not be discharged into another dwelling unit.
6. Taking return air from a crawl space shall not be accomplished through a direct connection to the return side of a forced air furnace. Transfer openings in the crawl space enclosure shall not be prohibited.
7. Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room <u>, indoor swimming pool enclosure and associated deck area,</u> or unconditioned attic.

Exceptions:

1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen and are located not less than 10 feet (3048 mm) from the cooking appliances.
2. Dedicated forced air systems serving only the garage shall not be prohibited from obtaining return air from the garage
3. ~~Return air shall not be taken from~~ Dedicated HVAC systems serving indoor swimming pool enclosures and associated deck areas ~~except where~~ shall not be prohibited from obtaining return air from such ~~spaces are dehumidified.~~ swimming pool enclosures and associated deck areas

Commenter's Reason: Class 2 air, such as humid contaminated air in swimming pool enclosures, should not be transferred into class 1 air spaces for cross contamination and humidification control reasons. This proposes to clarify the requirement and making an exception to permit air from swimming pool enclosers to be recirculated from the same or similar spaces within the building.

Public Comment 2:

Proponent : Guy McMann, Jefferson County, Co., representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

601.5 Return air openings. Return air openings for heating, ventilation and air-conditioning systems shall comply with all of the following:

1. Openings shall not be located less than 10 feet (3048 mm) measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space.
2. Return air shall not be taken from a hazardous or insanitary location or a refrigeration room as defined in this code.
3. The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space.
4. Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturer's installation instructions, ACCA Manual D or the design of the registered design professional.
5. Return air taken from one dwelling unit shall not be discharged into another dwelling unit.
6. Taking return air from a crawl space shall not be accomplished through a direct connection to the return side of a forced air furnace. Transfer openings in the crawl space enclosure shall not be prohibited.
7. Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic.

   Exceptions:

   1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen

and are located not less than 10 feet (3048 mm) from the cooking appliances.

2. Dedicated forced air systems serving only the garage shall not be prohibited from obtaining return air from the garage

8. Return air shall not be taken from indoor swimming pool enclosures and associated deck areas except where the air in such spaces is dehumidified in accordance with Section 403.2.1 item # 2, or where such spaces are ~~dehumidified~~ served by dedicated HVAC systems.

Commenter's Reason: The committees concern that the original language seemed to exclude dedicated systems was valid. This correction clearly excludes dedicated systems from the requirement of untreated recirculation to other spaces.

Public Comment 3:

Proponent : Brent Ursenbach, Salt Lake County, representing Utah Chapter ICC (bursenbach@slco.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

601.5 Return air openings. Return air openings for heating, ventilation and air-conditioning systems shall comply with all of the following:

1. Openings shall not be located less than 10 feet (3048 mm) measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space.
2. Return air shall not be taken from a hazardous or insanitary location or a refrigeration room as defined in this code.
3. The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space.
4. Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturer's installation instructions, ACCA Manual D or the design of the registered design professional.
5. Return air taken from one dwelling unit shall not be discharged into another dwelling unit.
6. Taking return air from a crawl space shall not be accomplished through a direct connection to the return side of a forced air furnace. Transfer openings in the crawl space enclosure shall not be prohibited.
7. Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic.

   Exceptions:

   1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen and are located not less than 10 feet (3048 mm) from the cooking appliances.
   2. Dedicated forced air systems serving only the

garage shall not be prohibited from obtaining return air from the garage

8. Return air shall not be taken from indoor swimming pool enclosures and associated deck areas ~~except where~~ .

Exceptions:

1. Where the air from such spaces ~~are~~ is dehumidified in accordance with Sections 403.2.1 Item #2.
2. Dedicated HVAC systems serving only such spaces.

Commenter's Reason: The original proposal correctly identified it is generally not desirable to draw return air from a pool area, where the moisture and chemical odors may be distributed through other areas of a building. This public comment addresses concerns identified by both the IFGC and IMC committees.
A similiar proposal FG 38, was modified during the IFGC Hearings, but disapproved by the committee; however an Assembly Motion for As Modified was successful. The IMC committee disapproved this proposal, as it prohibited the installation of a dedicated HVAC system for a pool enclosure. This public comment includes the FG 38 modification, made during the development hearings, and an exception for dedicated system, which has also been added to FG 38 by Public Comment.

M62-15

M64-15
602.1

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

602.1 General. Supply, return, exhaust, relief and ventilation air plenums shall be limited to uninhabited crawl spaces, areas above a ceiling or below the floor, attic spaces ~~and~~ , mechanical equipment rooms and the framing cavities addressed in Section 602.3. Plenums shall be limited to one fire area. Air systems shall be ducted from the boundary of the fire area served directly to the air-handling equipment. Fuel-fired appliances shall not be installed within a plenum.

Reason: Section 602.3 is in the plenum Section 602 and covers stud and joist space plenums, however, Section 602.1 does not recognize such plenums. Section 602.1 limits plenums to a list of spaces that excludes stud and joist space plenums.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M64-15 : 602.1-SNYDER3267

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Approval was based on the proponent's published reason statements. Under this proposal, framing cavities will no longer be excluded.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com) requests Disapprove.

Commenter's Reason: Section 602.3 states that these spaces are "sort of" plenums but are not to be used as plenums for supply air. Therefore adding them into section 602.1 seems almost a contradiction, since section 602.1 is specifically intended for "supply, return, exhaust, relief and ventilation air plenums". At present the "stud cavity and joist space plenums" addressed in 602.3 are not specifically required to comply with the requirements of 602.1 and that is as it should be. Moreover, M65 proposes to exclude these "sort of" plenums from the materials of construction requirements for plenums. This is something that is necessary. It is something that was introduced in a recent code cycle but was implicit before, in that the materials of construction of plenums (when exposed to the air flow) clearly need to meet the same fire safety requirements as the materials contained in the plenum (when exposed to the air flow).

M64-15

M65-15
602.2

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

602.2 Construction. *Plenum* enclosure construction materials that are exposed to the airflow shall comply with the requirements of Section 703.5 of the *International Building Code* or such materials shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

The use of gypsum boards to form plenums shall be limited to systems where the air temperatures do not exceed 125°F (52°C) and the building and mechanical system design conditions are such that the gypsum board surface temperature will be maintained above the airstream dew-point temperature. Air plenums formed by gypsum boards shall not be incorporated in air-handling systems utilizing evaporative coolers.

> **Exception:** The materials from which the stud and joist space plenums addressed in Section 602.3 are constructed shall not be required to comply with Section 703.5 of the International Building Code and shall not be required to have a maximum flame spread index of 25 and a maximum smoke-developed index of 50 when tested in accordance ASTM E 84 or UL723.

Reason: The significant change to Section 602.2 did not specifically address stud and joist space plenums. It is assumed that that Section 602.2 was intended to apply to spaces such as under-floor and above-ceiling spaces utilized as plenums. If Section 602.2 does apply to stud and joist space plenums, then such plenums would not be allowed to be constructed with wood studs, wood joists, wood trusses and wood floor decking. Section 602.2 should not have the effect of banning the common variety of stud and joist space plenums.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction

This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M65-15 : 602.2-SNYDER3268

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The change to the 2015 IMC to require 25/50 flame/smoke indices for the materials that bound the plenum was significant, and this proposal would be a step backwards.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

602.2 Construction. *Plenum* enclosure construction materials that are exposed to the airflow shall comply with the requirements of Section 703.5 of the *International Building Code* or such materials shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

The use of gypsum boards to form plenums shall be limited to systems where the air temperatures do not exceed 125°F (52°C) and the building and mechanical system design conditions are such that the gypsum board surface temperature will be maintained above the airstream dew-point temperature. Air plenums formed by gypsum boards shall not be incorporated in air-handling systems utilizing evaporative coolers.

> **Exception:** ~~The~~ The construction materials ~~from which the~~ for stud ~~and joist space~~ cavity plenums ~~addressed~~ that are in compliance with Section 602.3 ~~are~~ and constructed with gypsum board on both membranes of the wall assembly shall not be required to comply with Section 703.5 of the International Building Code and shall not be required to have a maximum flame spread index of 25 and a maximum smoke-developed index of 50 when tested in accordance ASTM E 84 or UL723.

Commenter's Reason: Stud cavities constructed of wood or steel studs and gypsum board are used for return air in many occupancies and they should not be prohibited over the concern for wood studs not having a 25/50 flame/smoke index. It is unnecessarily restrictive to apply Section 602.2 to stud cavities in wall assemblies constructed of wood studs and gypsum board membranes. Note that Section 602.2 has already eliminated the use of joist cavities as plenums in wood framed construction, and this revised exception is only addressing stud cavities for return air in wood or steel framed construction.

M65-15

M71-15
602.2.1.7

Proposed Change as Submitted

Proponent : Michael Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservices.com)

2015 International Mechanical Code

Revise as follows:

602.2.1.7 Plastic plumbing pipe and tube. Plastic piping and tubing used in plumbing systems ~~shall be listed and~~ shall exhibit a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

Reason: While some of the exceptions for products in this section of the mechanical code contain, "listed and labeled" language, some have no mention of "listing and labeling", section 602.2.1.7 oddly only says, "listed".

We propose to delete, "listed" from this section, as it is inconsistent with the other language.

Cost Impact: Will not increase the cost of construction
This proposal seeks to determine if the "listing / listing and labeling" language is correct compared with other sections, and seeks conformity in the language. Thus the code with this proposal added will not cause the cost of construction to increase.

M71-15 : 602.2.1.7-CUDAHY4606

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Disapproval was based on the action taken on M76-15.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Seiler, Arkema, Inc., representing Arkema (dave.seiler@arkema.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

602.2.1.7 Plastic plumbing pipe and tube. Plastic piping and tubing used in plumbing systems shall be listed and labeled and shall exhibit a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

Commenter's Reason: The proposal identified an anomaly in the current code language for ASTM E84 testing for plastic piping. The reason statement reads: "While some of the exceptions for products in this section of the mechanical code contain, "listed and labeled" language, some have no mention of "listing and labeling", section 602.2.1.7 oddly only says, "listed"."
Because the parent section in 602.2.1 contains a requirement that materials installed in plenums be either noncombustible, or be listed and labeled to ASTM E84, the intent of the code is clear. Furthermore, Exception 5.3 in 602.2.1 includes "Materials listed and labeled for installation within a plenum."
The correct requirement for plastic plumbing pipe and tube is listing and labeling. This public comment modifies the proposal to correctly capture the intent of the code.

M71-15

M75-15
602.2.1.7

Proposed Change as Submitted

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Mechanical Code

Revise as follows:

602.2.1.7 Plastic plumbing pipe and tube.
Plastic piping and tubing used in plumbing systems shall be listed and labeled and shall exhibit a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

Reason: This section was added at the last edition. When the language was developed the section was written stating that the plastic piping and tubing needs to be "listed" instead of "listed and labeled" as other products in plenums are.

Cost Impact: Will increase the cost of construction
If jurisdictions approved plastic piping and plumbing items that were listed but not listed and labeled they will, in future, have to be both listed and labeled.

M75-15 : 602.2.1.7-HIRSCHLER3529

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Disapproval was based on the action taken on M76-15.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com) requests Approve as Submitted.

Commenter's Reason: Approve proposal as submitted. It is essential that plastic pipe and tubing be listed and labeled. This is being submitted in case concerns are raised about M76.

M75-15

M76-15
602.2.1.7

Proposed Change as Submitted

Proponent : Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Mechanical Code

Revise as follows:

602.2.1.7 Plastic plumbing ~~pipe~~ piping and ~~tube~~ tubing. Plastic piping and tubing used in plumbing systems exposed within a plenum shall be listed and ~~shall exhibit~~ labeled as having a flame spread index ~~of~~ not ~~more~~ greater than 25 and a smoke-developed index ~~of~~ not ~~more~~ greater than 50 when tested in accordance with ASTM E 84 or UL 723.

> **Exception:** Plastic water distribution piping and tubing listed and labeled in accordance with UL 2846 as having a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread distance not greater than 5 feet (1524 mm), and installed in accordance with its listing.

Add new standard(s) as follows:
UL 2846-14, Fire Test of Plastic Water Distribution Plumbing Pipe for Visible Flame and Smoke Characteristics

Reason: This proposal accomplishes the following:

1. Clarifies that this section is only applicable to plastic piping and tubing exposed within a plenum, using wording similar to Section 602.2.1.3.
2. Makes grammatical revisions for consistency.
3. Allows an option for water distribution piping and tubing to be listed to the UL 2846 criteria noted.

UL 2846 is an ANSI standard that includes a test method for determining values of flame propagation distance and optical smoke density for individual pairs of plastic plumbing pipes for distribution of potable water that can be installed in ducts, plenums, and other spaces used for environmental air. The scope of this standard can be viewed at http://ulstandards.ul.com/standard/?id=2846.

The acceptance criteria specified (peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread distance not greater than 5 feet) is consistent with values in Sections 602.2.1.1, 602.2.1.2 and 602.2.1.3.

Cost Impact: Will not increase the cost of construction
This proposal provides an alternative method for evaluating plastic water distribution system piping and tubing.

Analysis:
A review of the standard proposed for inclusion in the code, UL 2846, with regard to the ICC criteria for referenced
standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

Public Hearing Results

Committee Action: Approved as Modified

Modification:

602.2.1.7 Plastic plumbing piping and tubing. Plastic piping and tubing used in plumbing systems ~~exposed within a plenum~~ shall be listed and labeled as having a flame spread index not greater than 25 and a smoke-developed index not greater than 50 when tested in accordance with ASTM E 84 or UL 723.

> **Exception:** Plastic water distribution piping and tubing listed and labeled in accordance with UL 2846 as having a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread distance not greater than 5 feet (1524 mm), and installed in accordance with its listing.

Committee Reason: Approval is based on the proponent's published reason statements. The modification eliminates redundant words because this section is about materials within plenums. The deleted words would allow materials to cover the pipes where such materials were not listed for the application of covering pipes.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Michael Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservices.com) requests Approve as Submitted.

Commenter's Reason: The floor modification to delete the langauage, "exposed within a plenum" was recommended in error, and PPFA recommends we approve the original submitted proposal from UL.

"Exposed within a plenum" and similar lanugage is repeated in section 602 at least seven times, and is very standard lanugage for multiple products, including;

wiring, optical fiber and communication raceways (602.2.1.1)
fire sprinkler piping (602.2.1.2)
pnumatic tubing (602.2.1.3)
electrical equipment (602.2.1.4)
and
discrete plumbing and mechanical products (602.2.1.5)

Pipe, like any other product, can be installed within a plenum if fully enclosed.
To omit this language would be in error, and inconsistant with the rest of that code section, would cause confusion, and we recommend the original proposal as it was submitted by UL.

Public Comment 2:

Proponent : David Seiler, Arkema, Inc., representing Arkema (dave.seiler@arkema.com) requests Approve as Modified by Committee.

Commenter's Reason: We support the modification by the committee, which ensures that a loophole contained in the proposal is not introduced into the mechanical code. As submitted, the proposal could allow the covering of piping with non-approved materials to avoid "exposure" within the plenum space as a means to negate the current test requirement for ASTM E84.
It is also important that the introduction of UL2846 be properly scoped; the committee modification ensures that.

M76-15

M77-15
602.2.1.7

Proposed Change as Submitted

Proponent: David Seiler, Arkema Inc, representing Arkema Inc. (dave.seiler@arkema.com)

2015 International Mechanical Code

Revise as follows:

602.2.1.7 Plastic plumbing pipe and tube. Plastic piping and tubing used in plumbing systems shall be listed and shall exhibit a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723 without any liquid in the pipe and utilizing the full width of the test apparatus tunnel during such tests.

Reason: This is a simple clarification to confirm the testing procedure of ASTM E84

Bibliography: NFPA 90A, ASTM E84, UL 723

Cost Impact: Will not increase the cost of construction
This clarification makes no change in the material types that currently meet the code, thus there is no cost impact.

M77-15 : 602.2.1.7-SEILER4331

Public Hearing Results

Committee Action: Disapproved

Committee Reason: It is not necessary for the code to clarify what is in the test standards, nor is it necessary to focus on a single aspect of such standards.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com) requests Approve as Submitted.

Commenter's Reason: This proposal works very well in conjunction with the approved text from M76 and it is consistent with the requirements of ASTM E84. The added language is needed because this requirement is often violated by

manufacturers of pipes or pipe materials who use test specimens that are less than full width and, in some cases, use plastic pipes filled with water to get better results.The code needs to be clear on critical aspects when abundant examples of violations exist.
UL 2846 (accepted for inclusion in the IMC by M76) provides a means for alternate testing (as an exception) for those "plastic water distribution piping and tubing" products that have been listed to UL 2846. In UL 2846 there is an explicit statement that liquids shall not be used during testing, which is why this added clause is not needed for the exception. There is no need for a double exception for these materials, as would be provided by the use of test specimens that don't **strictly** comply with ASTM E84.

ASTM E84 allows variations from the standard full width sheet testing **only** for (a) materials that have a standard mounting method developed (as a standard practice, described in section 6.8 of ASTM E84), (b) for adhesives and trim that have been listed and (c) for materials for which a specific test method exists (described in Appendix X5 of ASTM E84).

None of these methods include plastic piping.

Language in ASTM E84 (2015a) - sections 6.3, 6.8 and appendix X5:

6.3 The size of the test specimen shall be:
Width: between 20 and 24 in. (508 and 610 mm)
Length: 24 ft + 12 in. — 6 in.
Thickness: maximum 4 in. (101 mm).
NOTE 1 - The test apparatus is not designed for testing at thicknesses greater than 4 in. (101 mm), but has the ability to be modified if required. This is accomplished through (a) modifications to the test apparatus lid to maintain an airtight seal, and (b) the introduction, usually of additional sample/lid supports above the test apparatus ledges. Due to the composition of some materials, test results obtained at a thickness greater than 4 in. (101 mm) will potentially vary from results of a test on the same material tested at a thickness of 4 in. (101 mm) or less.
6.3.1 The test specimen shall not be required to conform to the test specimen length and width described in 6.3 when the material complies with 6.3.1.1-6.3.1.3.
NOTE 2 - When tests are conducted with materials installed at less than full width, representing the end-use width, any resulting flame spread and smoke developed indices will not relate to indices obtained with the calibration material, which is tested using the specimen width described in 6.3.
6.3.1.1 Materials for which there is a standard practice to address specimen preparation and mounting with this test method shall be tested as described in the appropriate standard practice (see 6.8).
6.3.1.2 Adhesives and trim shall be permitted to be tested in the width or length, or both, specified in their listings, or as part of their conditions for being labeled, by a nationally recognized testing laboratory.
6.3.1.3 Materials and products for which there is a specific test method or application standard requiring the use of the apparatus described in Section 5 shall be permitted to be tested in accordance with that specific test method or application standard (see Appendix X5).

6.8 In addition to the above provisions, the standard practices listed below shall be used for specimen preparation and mounting of the relevant test materials. For all other products, guidance on mounting methods is provided in Appendix X1.
E2231 for pipe and duct insulation materials.
E2404 for paper, polymeric (including vinyl and expanded vinyl) and textile wall and ceiling covering materials, facings or wood veneers intended to be applied on site over a wood substrate.
E2573 for site-fabricated stretch systems.
E2579 for the following wood products: solid board, lumber and timber products (including solid boards, lumber, timber, fingerjoined lumber, glulam, laminate wood, laminated veneer lumber and parallel strand lumber products), panel products (including fibreboard, hardboard, oriented strandboard, waferboard, and plywood panel products), decorative wood products (including fine woodwork, millwork and moulding) and shingles and shakes used as interior wall and ceiling finish and interior trim as well as to laminated products factory-produced with a wood

substrate.
E2599 for reflective insulation, radiant barrier and vinyl stretch ceiling materials for building applications.
E2688 for tapes up to and including 8 in. (203.2 mm) in width.
E2690 for caulks and sealants intended to be applied up to and including 8 in. (203.2 mm) in width.
E2988 for Flexible Fibrous Glass Insulation for Metal Buildings.

X5. SPECIFIC TEST METHODS AND APPLICATION STANDARDS
X5.1 The following standards address testing of materials in accordance with test methods that are applications or variations of this test method or apparatus.
X5.1.1 Wires and cables for use in air-handling spaces are covered by NFPA 262.
X5.1.2 Pneumatic tubing for control systems are covered by UL 1820.
X5.1.3 Combustible sprinkler piping is covered by UL 1887.
X5.1.4 Optical fiber and communications raceways are covered by UL 2024.
X5.1.5 Materials required to meet the extended Test Method E84 to a 30-min duration are covered by Test Method E2768.

Public Comment 2:

Proponent : David Seiler, Arkema, Inc., representing Arkema (dave.seiler@arkema.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

602.2.1.7 Plastic plumbing pipe and tube. Plastic piping and tubing used in plumbing systems shall be listed and labeled and shall exhibit a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723 . Test specimens shall have a width of not less than 20 inches (508mm) and not greater than 24 inches (610mm). Tests shall be conducted without any liquid in the ~~pipe and utilizing the full width of the test apparatus tunnel during such tests~~ specimens.

Commenter's Reason: The proposal was submitted to provide guidance to testing and certification agencies about a very important aspect of fire testing for plastic pipes located within plenum spaces.
The committee reason for disapproval states that it is unnecessay for the code to clarify what is in the standards, but when there is confusion and disagreement in the testing and certification industry, these types of clarifications become essential to safeguard public safety. The codes rely on test methods for evaluating building materials and products; in many cases the code references do contain specific provisions to clarify test parameters, modify certain provisions, or provide guidance to manufacturers and testing agencies on demonstrating code compliance.

This proposal covers such a test standard reference. ASTM E84 (also known as the Steiner Tunnel Test) is used for a broad variety of building materials and products, including plastics. The standard provides guidance on how to prepare material specimens in order to ensure consistently *comparative* and repeatable testing. Product evaluation entities, including ICC-ES, have issued product "approvals" based on testing conducted "in general accordance with" or using "modified versions" of ASTM E84; those product approvals are then used as evidence of code compliance.

ASTM E84 provides guidance on materials testing by establishing a minimum

specimen width of 20". Testing of material specimens with less than 20" width can provide a false sense of security (and an inaccurate flame spread and/or smode developed index) by reducing the fuel load during the test. There is no reason that arrays of plastic pipe specimen(s) cannot be appropriately mounted within the test tunnel.

Additionally, manufacturers have tested plastic pipes to ASTM E84 with water or other liquid present in the pipe specimen(s). Testing plastic condensate or drain pipes that are normally empty as installed in the intended end use by filling them with water violates a basic premise of the code: demonstration of code compliance *must* be based on representative specimens tested as they are intended to be used.

The modification in this comment includes three technical changes:

1. Adds "labeled" to the requirement for testing to be consistent with the committee action on M76-15.

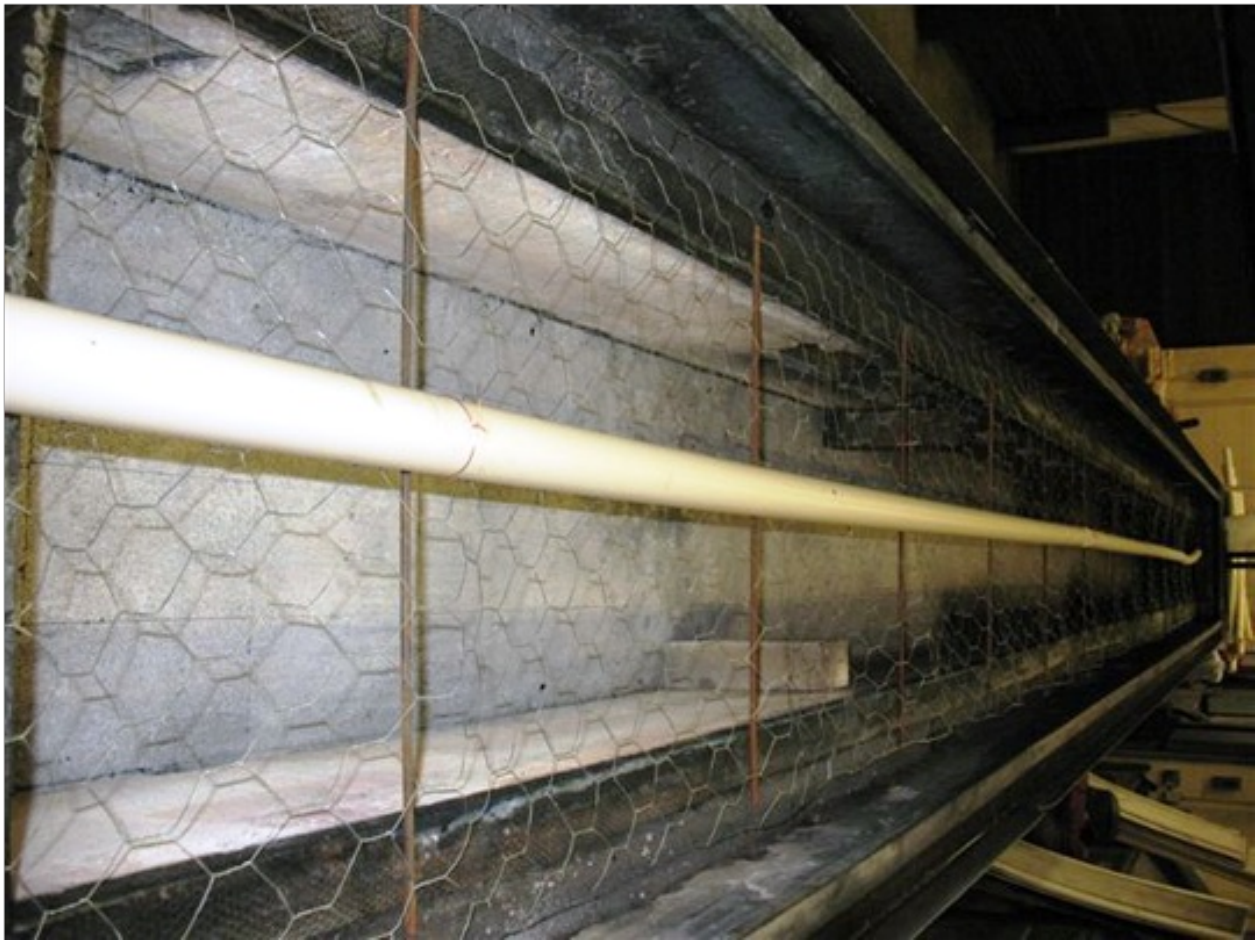
2. Specifies a minimum width for test specimens; the 20" width is included in ASTM E84.

3. Clarifies that plastic pipes for use in plenums must be tested without the addition of liquids in the test specimens.

Leading certification bodies agree with our stance on these test parameters. In correspondence on this matter, UL stated they would decline to test (let alone certify)plastic pipes with water in the specimen(s). UL further states that while they would conduct ASTM E84/UL723 tests with specimens at less than full width for the purposes of product development "for the applicant's use only", they would *not* provide product certification for products tested in that manner.

Approving this proposal as modified by this public comment will set the appropriate level of fire safety by requiring that plastic pipes manufactured for use in plenums be tested in *full* accordance with ASTM E84 and without adding water. Despite the committee reason statement to the contrary, these safeguards are essential.

Attached to this reason statement is a letter from UL to Arkema on the subject of plastic pipe testing, and several photographs showing installed pipe configurations and testing illustrations.



August 20, 2014

Arkema Inc.
Rosemary Heinze
Marketing Manager - Fluoropolymers
900 First Ave
King of Prussia, PA 19406

Subject: Clarification on Testing of Pipes

Dear Rosemary,

This letter clarifies our recent discussions. In your e-mail last month, you inquired:

If Arkema had materials that they would like to test to this standard (UL723 / ASTM E84) which seems to allow (1) water filled pipes, (2) pipes up to 6" in diameter, and (3) single pipes in the tunnel rather than full width testing; would UL agree to perform these tests and provide a flame and smoke value listing for use in compliance with ASTM E84/UL 723?

Thanks for your inquiry Rosemary. The basic answer to your questions is that at this time, UL would decline to provide certification for the pipe products in the manner described. We expounded on this discussion through various calls and e-mails. This letter intends to confirm those discussions.

1. UL would decline testing and certification of water filled pipes because:

   a. When the flame breaches the pipe wall, water could disperse throughout the tunnel. The water interferes with the test results, and UL does not believe this is within the intent of the comparative test method UL723 / ASTM E84. At ASTM and at NFPA 90A, UL has continually supported that pipes, when tested, should not be filled with water.

   b. UL believes that even pipes that are “intended” to be filled with water, may for various reasons be found empty in the field, and become subject to fire exposure without water in them.

   c. In committee discussions, there have been misunderstandings expressed about testing thermoplastic sprinkler pipe in accordance with UL1887. This confirms that in accordance with UL1887, pipes are not intended to be tested filled with water.

2. UL will test pipes up to 6 in. diameter under our Preliminary Investigation or Verification Service for the Applicant’s use only, but not provide certification:

   a. Experience shows that in most instances single or double lengths of large diameter pipes significantly increase the volume in the tunnel apparatus during the test. This disrupts the normal air flow through the tunnel which can result in a reduction in the 4 ½ ft. flame front and a reduction in the normal interior furnace temperature. This could have a significant effect on the flame spread index and smoke developed index. The Report accompanying such test results would clearly state these observations.

   b. Because of these test performance dynamics that alter the results, UL would decline to provide certification when these dynamics occur.

UL LLC
12 Laboratory Drive, Research Triangle Park, NC 27709-3995 USA
T: 919.549.1400 / F: 919.547.6000 / W: UL.com

3. Lastly, UL would test small diameter, single pipes in the tunnel rather than full width testing under our Preliminary Investigation or Verification Service for the Applicant's use only, but would not provide certification. The reason is that testing less than full width in this method has not been clearly defined or permitted within UL723 or ASTM E84. As you are aware, this continues to be heavily debated within the ASTM committees. In addition, testing less than full width conflicts with NFPA 90A. We do not know if the results from a single pipe length would satisfy the needs of the other Codes.

As an outgrowth of the need for an alternate test method for testing pipe, recently UL Standards received a ballot for a proposal to develop a new UL Standard for Plastic Pipe. The scope of this Standard UL2846 is limited to plumbing pipes for distribution of potable water that can be installed in ducts, plenums, and other spaces used for environmental air. The method determines flame propagation distance and optical smoke density for individual pairs of plastic. The intended pass / fail criteria are flame travel of < 5 feet, peak optical density < 0.5, and average optical density < 0.15. This method addresses pipe sizes 4 in. and less in diameter and uses the UL1887 tray to mount two pipes side-by-side. This test method does not cover plastic pipes when installed adjacent (side to side) in quantities greater than two.

Should you or anyone have any questions, please do not hesitate to contact me.

Very truly yours,

Randall Laymon
Senior Staff Engineer
Building Materials & Systems

Reviewed by:

Dwayne Sloan
Principal Engineer
Building Materials & Systems

M77-15

M78-15
602.2.1.8 (New)

Proposed Change as Submitted

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Mechanical Code

Add new text as follows:

602.2.1.8 Pipe insulation. Pipe insulation in plenums shall comply with the requirements of Section 604.

Reason: Section 602 contains the requirements for materials in plenums. However, pipe insulation in plenums, which is supposed to comply with the same requirements as duct insulation (shown in section 604) is not specifically included. The default requirements in section 602 are simply a flame spread index of 25 and a smoke developed index of 50, when tested in accordance with ASTM E84. However, section 604 contains further details, including the requirements to meet testing in accordance with ASTM C411, the temperature requirements and the details of the mounting method for ASTM E84 (which should be in accordance with ASTM E2231). Some people may consider this as implicit but it is always better to be explicit rather than implicit. ASTM E2231 is entitled Standard Practice for Specimen Preparation and Mounting of Pipe and Duct Insulation Materials to Assess Surface Burning Characteristics and it deals with both pipe and duct insulation and it is already referenced in section 604 of the IMC.

Cost Impact: Will increase the cost of construction
This provides a pointer to clarify a missing requirement and should not affect requirements. However, if some juridisctions now handle pipe insulation in plenums different from duct insulation then the requirements would change for those jurisdictions.

M78-15 : 602.2.1.8 (New)-HIRSCHLER3525

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Disapproval was based on the action taken on M79-15

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com) requests Approve as Submitted.

Commenter's Reason: I support the committee action on proposal M79. This public comment is being presented simply in case the approval of M79 is challenged. The code is silent about pipe insulation at present.

M80-15
602.2.2 (New)

Proposed Change as Submitted

Proponent : Brian Helms, Charlotte Plastics, representing Charlotte Pipe and Foundry (brian.helms@charlottepipe.com)

2015 International Mechanical Code

Add new text as follows:

602.2.2 Plastic piping in plenums. Plastic piping installed in plenums shall be tested in strict accordance with the requirements of ASTM E84 and UL723 including the mounting method used and the size of the sample tested. Modified tests that use mounting methods or sample sizes different than those required by the E84 and UL723 shall not be accepted as proof of compliance.

Reason: The requirements found in STM E84 and UL723 are the requirements. Changing the sample size or mounting methods to enable a plastic pipe manufacturer to achieve a passing grade ignore the basis by which the existing requirements exist. That reason is the protection of the health and safety of the occupants of the building. Allowing the use of modified tests exposes all plastic pipe manufacturers to liability which some might not wish to accept.

Cost Impact: Will not increase the cost of construction
This change merely highlights that the requirement of the standards regarding a product's acceptability for use in a plenum be followed without alteration. The practice of modifying or altering the requirements of ASTM E84 and UL 723 has been gaining momentum in the industry and diluting results that are intended to provide safety to the industry by measuring flame spread and smoke development of material used in a plenum. This change does not add to the cost of construction.

M80-15 : 602.2.2 (New)-HELMS5401

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal would bring the code into the business of writng test standards. Who determines if the test methods were modified. The adjective "strict" before the word accordance implies that there is some other level of compliance with the standard requirements and that AHJ approval may be involved.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Brian Helms, representing Charlotte Pipe and Foundry (brian.helms@charlottepipe.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

602.2.2 Plastic piping in plenums. Plastic piping installed in plenums shall be tested in ~~strict~~ accordance with the requirements of ASTM E84 and UL723 ~~including the mounting method used and the size of the sample tested~~. _Modified tests that use mounting methods or sample sizes different than those required by ~~the~~ ASTM E84 and UL723 shall not be accepted as proof of compliance.

Commenter's Reason: ASTM E84 has long been the benchmark for the use of combustible piping materials in plenum applications. This proposal does not request the code body to rewrite the standard. Instead, this proposal empowers officials to reject products that have supposedly passed the requirements of ASTM E84 via questionable methods and enables them to ask for detailed test reports. Currently, the IMC does not include any recourse for code officials or specifying design professionals to combat the growing problem of some manufacturers intentionally altering some methods in these standards for the purpose of getting a passing 25/50 flame spread/smoke developed result. This proposal is a step in the right direction to keep manufacturers honest and to reduce safety liability for code officials, engineers, contractors and manufacturers.

M80-15

M93-15
603.8, 603.8.3

Proposed Change as Submitted

Proponent : Charles Stock, Spunstrand Inc., representing Spunstrand Inc.

2015 International Mechanical Code

Revise as follows:

603.8 Underground ducts. Ducts shall be *approved* for underground installation. Metallic ducts not having an *approved* protective coating shall be completely encased in not less than 2 inches (51 mm) of concrete. Nonmetallic and plastic ducts shall comply with UL 181.

603.8.3 Plastic ducts and fittings. Plastic ducts shall be constructed only of PVC having a minimum pipe stiffness of 8 psi (55 kPa) at 5-percent deflection when tested in accordance with ASTM D 2412. Plastic duct fittings shall be constructed of either PVC or high-density polyethylene. Plastic duct and fittings shall be utilized in underground installations only and all exposed surfaces shall have a Class 0 or Class 1 flame and smoke rating in accordance with UL 181. The maximum design temperature for systems utilizing plastic duct and fittings shall be 150°F (66°C).

Reason: The further clarification in section 603.8 and the addition of section 603.8.3 are mainly intended to insure that the use of improper materials does not slip through the code cracks. This should eliminate the use of highly flammable and excessive smoke-generating materials in an HVAC duct system regardless of its installation location above or below ground. All duct and fittings used for HVAC systems in the Uniform Mechanical Code and the International Mechanical Code call for the interior of the duct and plenums to be rated Class 0 or Class 1 per UL 181, which is a flame spread of 25 and a smoke development of 50 or less. These standards are used for ducts and plenums for both safety and liability concerns which should apply to underground duct and fittings as well. The indication that PVC or HDPE, which do not meet Class 1 or Class 0 per UL 181, can be used solely because it is buried seems to drastically contradict the other code sections. Duct systems, both above and below ground, should comply with applicable UL 181 standards. It should also be noted that the maximum temperature rating for PVC and HDPE is usually 140deg F. Limit switches on residential and commercial air handlers are normally set at 160deg F and air temperatures in the ductwork can often run up to 140deg F. If a $25 limit switch fails, the temperatures can then easily exceed 140deg F. It is inappropriate to install a material in a duct system in which the air exceeds the ducts maximum temperature rating with no safety factor.

Cost Impact: Will not increase the cost of construction
Any products that are not completely code compliant, meeting UL 181 and ASTM C-518, were not and should not be considered in determining the cost impact of these proposed changes. With that said, there would be no cost impact as there are currently three U.S. manufacturers providing code approved product with numerous others who could if they are willing to enter the market.

M93-15 : 603.8-STOCK5654

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The code should refer to just ducts as opposed to nonmetallic and plastic. UL181 is not the appropriate standard. There is no rationale for limiting plastic underground ducts to PVC only.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Charles Stock, representing Spunstrand Inc requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

603.8 Underground ducts. Ducts shall be *approved* for underground installation and shall achieve a class 0 or 1 rating when tested in accordance with ASTM E-84 or UL 723. Metallic ducts not having an *approved* protective coating shall be completely encased in not less than 2 inches (51 mm) of concrete. ~~Nonmetallic and plastic ducts shall comply with UL 181.~~

603.8.3 Plastic ducts and fittings. Plastic ducts shall be constructed only of PVC ~~having~~ or FRP and shall have a minimum pipe stiffness of 8 psi (55 kPa) at 5-percent deflection when tested in accordance with ASTM D 2412. Plastic duct fittings shall be constructed only of ~~either PVC~~ PVC, FRP, or high-density polyethylene. Plastic duct and fittings shall be utilized in underground installations only ~~and all exposed surfaces shall have a Class 0 or Class 1 flame and smoke rating in accordance with UL 181~~. The maximum design temperature for systems utilizing plastic duct and fittings shall be 150°F (66°C).

Commenter's Reason:
Spunstrands goal in requesting approval of the proposed code changes is simply to clarify and strengthen the code for underground ductwork. We desire to stop the use of potentially unsafe products which continue to be accepted and installed through some of the current interpretations of code verbiage. As product offerings change and new products enter the market it is important that the code evolves accordingly to maintain the desired level of clarity and direction for all manufacturers, designers, installers, and inspectors.

Leaving IMC 603.8 and 603.8.3 as is will do nothing but create a race to the bottom when it comes to underground duct materials. Since Spunstrand started making ductwork for underground applications, we have had the desire to manufacture a safe, code-compliant product. However, without the proposed type of modifications and additions, Spunstrand and other manufacturers, in order to compete with new products, will be forced by ICC and its voters to offer and supply less-safe non-class 1 products. In the end, the failure to act by the voters and subsequent shift to accepting poorer-performing products would contradict what ICC and its members claim their codes are intended to accomplish.

Throughout the mechanical codes, all aboveground ducts are to comply with the strict standards of achieving class 0 or 1 per ASTM E-84 or UL 723. Knowing that with fuel, oxygen, and heat/flame there is fire, it is only logical that an underground HVAC duct system intended to convey air/oxygen would have the potential to see all three if, and only if, the ductwork itself is a fuel. So why not limit the use of duct materials that contribute to fire whether it be above or below ground by requiring

underground duct to show compliance with the flame and smoke requirements of ASTM E-84 or UL 723? There are some that believe a duct being non-toxic, non-caustic, and installed underground should be enough of a justification for overlooking this point. However, this doesn't change the fact that non-class 0/1 duct material may spread or contribute to the spread of flame throughout a building more and faster than a class 0/1 material; it may also generate or contribute to the generation of more smoke than a class 0/1 material. If flame propagation and smoke generation are not important, just because the materials are non-toxic, non-caustic, and underground, then no change to the code is needed here. However, if there is value in showing that flame and smoke performance characteristics are important regardless of where in the building envelope they are, then I urge you to vote for the approval of the changes proposed here.

The additions to 603.8.3 will clarify the use of FRP duct/fittings along with continued use of PVC duct and PVC/HDPE fittings. They will also insure that modified versions of these recognized materials are not installed. The additional "only" disclaimers are intended to prohibit PVC, FRP, or HDPE "like" products from being acceptable for underground installations. While, despite their performance characteristics, the addition of PVC duct and PVC/HDPE fittings were allowed into the IMC decades ago these additions will allow code-compliant FRP duct, which has been used for decades as well, to be acknowledged while limiting non-compliant products from being utilized.

In the end, it is our belief that ICC and its members can either wait until there is an issue or catastrophe caused by, or contributed to by, non-compliant or under-performing products that are using the "open" verbiage currently in 603.8 and 603.8.3 or they can be proactive and clarify now that ICC, its members, and its inspectors do desire "...to protect the health, safety, and welfare of people by creating safe buildings..."

M93-15

M95-15
603.8.3

Proposed Change as Submitted

Proponent : Terrence Cahill, Crawford Company, representing Crawford Company (tcahill@crawford-company.com)

2015 International Mechanical Code

Revise as follows:

603.8.3 Plastic ducts and fittings. Plastic ducts shall be constructed of ~~PVC~~ a Class 0 or Class 1 duct material having a flame spread index of 25 or less and a smoke developement index of 50 or less, when tested in accordance with ASTM E-84 or UL 723. Ducts shall have a minimum pipe stiffness of 8 psi (55 kPa) at 5-percent deflection when tested in accordance with ASTM D 2412. ~~Plastic duct fittings shall be constructed of either PVC or high-density polyethylene.~~ _ Plastic duct and fittings shall be ~~utilized in~~ listed and labeled for underground installations ~~only~~. The maximum design temperature for systems utilizing plastic duct and fittings shall be 150°F (66°C).

Reason: Section 603.8.3 should be updated to include all listed and labeled plastic duct options. Of primary concern is the lack of requirement for a NFPA Class 1 duct material (less than 25 Flame spread, and less than 50 Smoke development) for underground HVAC duct. For Health and Safety reasons we feel that this should be a minimum requirement for all HVAC duct.
Throughout the IMC there is a uniformity that requires Class 0 or Class1, listed and labeled material for nonmetallic duct components. Underground nonmetallic duct, Section 603.8.3 should not be an exception. The following sections are examples of the Class 0 or Class1 requirements:

-510.8 Hazardous Exhaust - Duct construction *1 (see attachment File A)

-602.2.1 Materials within plenums *2

-603.5 Nonmetallic ducts *3

-603.6.2 Flexible air connectors *4

-604.3 Coverings and Linings *5

The Uniform Mechanical Code (UMC) -2012 is also clear on requirements for Class 0 or Class 1 Duct Materials. Reference the following sections:

- 506.1 Product Conveying Ducts - Materials *6

-602.2 Combustibles within Ducts or Plenums *7.

The current IMC code section 603.8.3 limits underground HVAC duct materials to PVC or HDPE, neither of which are a Class 0 or Class 1 duct material. When this code section was written these materials may have been the best choice for corrosion resistant underground duct. There are new duct products that are ICC-ES tested and listed with a PMG listing for underground duct. One of the principle ICC-ES requirements for underground nonmetallic duct is that it be ASTM E84 Class 0 or Class1 material. This code change will acknowledge these new approved materials and set standards that are consistent and uniform as new duct materials are introduced.

After the 9/11disaster FEMA, AWWA, NYPD and others put out independent reports on what improvements could be to the building codes in order to reduce the number of casualties in future disasters. These organizations independently concurred that in the event of catastrophic episode, all ductwork within a building should have the capability of being used for exhaust duct. By requiring Class 0 or Class 1 duct

material in section 603.8.3 this recommendation is ensured as these types of duct materials will not readily melt and collapse in fire situations. Both PVC and HDPE will readily melt and HDPE specifically has been shown to easily burn, even in underground applications.

This proposed Code change will ensure reliability, safety and uniformity with all nonmetallic duct applications.

Cost Impact: Will not increase the cost of construction
The proposed code change will have little if any effect on the cost of an installed underground duct systems. Even though the raw material cost of the called out PVC and HDPE are less than the resins used for fiberglass reinforced plastic, the installation requirements tend to even out the installed finished project cost. As an example, corrosion resistant high strength filament wound fiberglass duct does not require concrete encasement as metallic and some nonmetallic duct materials do. As HVAC design engineers are trending more and more towards designing buildings utilizing Displacement Ventilation systems, larger diameter underground ducts are required. Nonmetallic, code approved duct material options already exist that are more cost effective for large diameter duct than the section 603.8.3 mentioned PVC or HDPE. The proposed code change to Class 0 or Class1 duct material will encourage the development of even more cost effective duct materials that also incorporate this life saving requirement. The real issue is health and safety and that is hard to put a price on.

December 2014 Quoted List Pricing

Size	Price / Foot	90dg Elbow
24''PVC	89.95	1,077.00
24'' HDPE	83.88	617.00
24'' FRP	35.00	398.00
30'' PVC	150.00	1,280.00
30'' HDPE	105.62	842.00
30'' FRP	45.00	573.00
36'' PVC	198.00	1,4130
36''HDPE	135.75	1,083.00
36'' FRP	52.00	687.00

PVC pricing from Harrison Machine and Plastic Corporation -see attachment file * B-1 though B-5

HDPE pricing from Blue Duct - see attachment *B -6

FRP pricing from UnderDuct - see attachment * B -7

M95-15 : 603.8.3-CAHILL3564

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There was no justification for deleting HDPE plastic materials. There was no justification for requiring 25/50 flame/smoke indices. Disapproval was based on the action taken on M93-15.

Individual Consideration Agenda

Public Comment 1:

Proponent : Terrence Cahill, Crawford Company, representing Crawford Company (tcahill@crawford-company.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Mechanical Code

603.8.3 Plastic ducts and fittings. Plastic ducts and fittings shall be constructed of PVC ~~having~~ , fiberglass reinforced plastic (FRP) or high density polyethylene (HDPE) and shall have a minimum pipe stiffness of 8 psi (55 kPa) at 5-percent deflection when tested in accordance with ASTM D 2412. ~~Plastic duct fittings shall be constructed of either PVC or high-density polyethylene.~~ _Plastic duct and fittings shall be utilized in underground installations only. The maximum design temperature for systems utilizing plastic duct and fittings shall be 150°F (66°C).

Commenter's Reason: This is in response to having code change proposal M95-15 rejected at the Code Hearings in April.
Realizing that underground PVC or HDPE duct does not have to be a class 0 or class1 duct material as required by ICC-ES LC1014, we propose this alternate change to code section 603.8.3 through the Public Comment process.

Reasons:

1. IMC code section 603.8.3 should acknowledge all LC1014 tested, PMG listed nonmetallic duct. Currently it reads "...shall be PVC... Plastic duct fittings constructed of either PVC or high density polyethylene". There are at least two manufactures of fiberglass reinforced plastic (FRP) that have a PMG listing for underground HVAC duct.

2. ICC-ES has accepted our fees and all of our expensive test data, and in turn we have been granted a PMG listing (see attachment) for underground duct. Without having FRP mentioned along with other materials in the IMC code section 603.8.3, it seems our time, money and effort have been for naught.

3 Customers, Architects, Engineers Code Officials and Contractors should know that fiberglass reinforced plastic duct is a code approved option for underground HVAC duct. It should be acknowledged in IMC code section 603.8.3.

M95-15

M96-15
603.9

Proposed Change as Submitted

Proponent : Donald Surrena, National Association of Home Builders, representing National Association of Home Builders (dsurrena@nahb.org)

2015 International Mechanical Code

Revise as follows:

603.9 Joints, seams and connections. All longitudinal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA *HVAC Duct Construction Standards—Metal and Flexible* and NAIMA *Fibrous Glass Duct Construction Standards*. All joints, longitudinal and transverse seams and connections in ductwork shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants or tapes. Tapes and mastics used to seal fibrous glass ductwork shall be listed and labeled in accordance with UL 181A and shall be marked "181 A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape. Tapes and mastics used to seal metallic and flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181 B-FX" for pressure-sensitive tape or "181 B-M" for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked "181 B-C." Closure systems used to seal all ductwork shall be installed in accordance with the manufacturer's instructions.

> **Exception:** For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams and locking-type joints and seams of other than the snap-lock and buttonlock types for ducts that are located outside of conditioned spaces.

Reason: This proposal will reduce construction cost and still reduce energy loss that would occur due to duct leakage outside conditioned space. Low pressure longitudinal seam duct leakage is very limited and the small amount of leakage within conditioned space is still useful energy.

Bibliography: Estimated Costs of the 2015 IRC Codes Changes, Home Innovation Research Labs, Upper Marlboro, MD, December 2014,Report Reference No: MAT 1, Page 33

Cost Impact: Will not increase the cost of construction
Cost decrease of up to $314 for an average house according to research conducted by Home Innovation Research Labs.

M96-15 : 603.9-SURRENA5017

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The leakage rate for snap-lock and button-lock joints is insignificant and acceptable within conditioned spaces.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Craig Drumheller, representing National Association of Home Builders (CDrumheller@nahb.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

603.9 Joints, seams and connections. All longitudinal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA *HVAC Duct Construction Standards—Metal and Flexible* and NAIMA *Fibrous Glass Duct Construction Standards*. All joints, longitudinal and transverse seams and connections in ductwork shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants or tapes. Tapes and mastics used to seal fibrous glass ductwork shall be listed and labeled in accordance with UL 181A and shall be marked "181 A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape. Tapes and mastics used to seal metallic and flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181 B-FX" for pressure-sensitive tape or "181 B-M" for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked "181 B-C." Closure systems used to seal all ductwork shall be installed in accordance with the manufacturer's instructions.

> **Exception:** For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for locking type longitudinal joints and seams located within conditioned space. ~~continuously welded joints and seams and locking-type joints and seams of other than the snap-lock and buttonlock types for ducts that are located outside of conditioned spaces.~~

Commenter's Reason: This proposal was approved at the Committee Action Hearings. The committee recognized that the cost to seal the longitudinal joints in conditioned space outweighed the benefit for this requirement; however, there was a concern that the modification contributed to the confusion of an already unclear exception.
The public comment modification does not change the meaning or intent of the original proposal. The change improves the language by removing exceptions to exceptions and also removing a redundant reference to "welded seams".

As modified, this proposal will still reduce the cost of construction up to $314 for an

average house.

M96-15

M98-15
604.3

Proposed Change as Submitted

Proponent : Mike Fischer, Kellen Company, representing The Center for the Polyurethanes Industry of the American Chemistry Council (mfischer@kellencompany.com)

2015 International Mechanical Code

Revise as follows:

604.3 Coverings and linings. Coverings and linings, including adhesives where used, shall have a flame spread index not more than 25 and a smoke-developed index not more than 50, when tested in accordance with ASTM E 84 or UL 723, using the specimen preparation and mounting procedures of ASTM E 2231. Duct coverings and linings shall not flame, glow, smolder or smoke when tested in accordance with ASTM C 411 at the temperature to which they are exposed in service. The test temperature shall not fall below 250°F (121°C). Coverings and linings shall be listed and labeled.

Exception: Polyurethane foam insulation that is spray applied to the exterior of ducts in attics and crawlspaces shall have a smoke-developed index not greater than 450, subject to all of the following requirements:

1. The foam plastic insulation complies with the requirements of Section 2603 of the *International Building Code.*
2. The foam plastic insulation is protected against ignition in accordance with the requirements of Section 2603.4.1.6 of the *International Building Code.*

Delete without substitution:

~~**604.4 Foam plastic insulation.** Foam plastic used as duct coverings and linings shall conform to the requirements of Section 604.~~

Reason: The proposal adds an exception allowing a greater smoke-developed index for some applications of foam plastic insulation on the exterior surfaces of ducts in attics or crawlspaces under certain specified conditions. The exception applies only to foam insulation meeting the requirements of IBC Section 2603 and the ignition barrier requirements in IBC Section 2603.4.1.6. This additional option is consistent with the options in Section M1601.3 of the IRC.
Additionally the proposal removes a circular reference in Section 604.4.

Cost Impact: Will not increase the cost of construction
the proposal clarifies existing requirements and adds an option consistent with the IRC; it adds no additional mandatory provisions.

M98-15 : 604.3-FISCHER5593

Public Hearing Results

Committee Action: Approved as Modified

Modification:

604.3 Coverings and linings. Coverings and linings, including adhesives where used, shall have a flame spread index not more than 25 and a smoke-developed index not more than 50, when tested in accordance with ASTM E 84 or UL 723, using the specimen preparation and mounting procedures of ASTM E 2231. Duct coverings and linings shall not flame, glow, smolder or smoke when tested in accordance with ASTM C 411 at the temperature to which they are exposed in service. The test temperature shall not fall below 250°F (121°C). Coverings and linings shall be listed and labeled.

> **Exception:** Polyurethane foam insulation that is spray applied to the exterior of ducts in attics and crawlspaces shall have a flame spread index not greater than 75 and a smoke-developed index not greater than 450, subject to all of the following requirements:

1. The foam plastic insulation complies with the requirements of Section 2603 of the *International Building Code*.
2. The foam plastic insulation is protected against ignition in accordance with the requirements of Section 2603.4.1.6 of the *International Building Code*.

604.4 Foam plastic insulation. Foam plastic used as duct coverings and linings shall conform to the requirements of Section 604.

Committee Reason: Approval was based on the proponent's published reason statements. The use of spray foam insulation is growing and the code needs to address it. The modifications restore Section 604.4 to ensure proper code enforcement and provide both flame and smoke idices to fully assess the material.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Mike Fischer, Kellen, representing The Center for the Polyurethanes Industry of the (mfischer@kellencompany.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

604.3 Coverings and linings. ~~Coverings~~ Duct coverings and linings, including adhesives where used, shall have a flame spread index not more than 25 and a smoke-developed index not more than 50, when tested in accordance with ASTM E 84 or UL 723, using the specimen preparation and mounting procedures of ASTM E 2231. Duct coverings and linings shall not flame, glow, smolder or smoke when tested in accordance with ASTM C 411 at the temperature to which they are exposed in service. The test temperature shall not fall below 250°F (121°C). Coverings and linings shall be listed and labeled.

Exception: Polyurethane foam insulation that is spray applied to the exterior of ducts in attics and crawlspaces shall ~~have a flame spread index not more than 75 and a smoke-developed index not greater than 450,~~ be subject to all of the following requirements:

1. The foam plastic insulation shall have a flame spread index not greater than 75 and a smoke developed index not greater than 450, when tested in accordance with ASTM E84 or UL 723, using the specimen preparation and mounting procedures of ASTM E2231.
2. The foam plastic insulation shall not flame, glow, smolder or smoke when tested in accordance with ASTM C411 at the temperature to which the foam plastic insulation is exposed in service. The test temperature shall not fall below 250 degrees F (121 degrees C).
3. The foam plastic insulation complies with the requirements of Section 2603 of the *International Building Code.*
~~2~~ 4. The foam plastic insulation is protected against ignition in accordance with the requirements of Section 2603.4.1.6 of the *International Building Code.*

Commenter's Reason: The code proposal was intended to provide for the use of foam plastic insulation for duct coverings in a manner consistent with the provisions for foam plastics in crawlspaces using surface burning characteristics in IBC Section 2603, and the ignition barrier requirements of IBC 2603.4.1.6. The proposal as modified by the committee creates some ambiguity regarding the requirements for testing to ASTM C411 and the provisions for appropriate mounting methods of ASTM E2231.
This modified proposal retains the intent of the proposal and the committee but clarifies that the appropriate requirements for hot surface performance testing remain in effect.

Public Comment 2:

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

604.3 Coverings and linings. ~~Coverings~~ Duct coverings and linings, including adhesives where used, shall have a flame spread index not more than 25 and a smoke-developed index not more than 50, when tested in accordance with ASTM E 84 or UL 723, using the specimen preparation and mounting procedures of ASTM E 2231. Duct coverings and linings shall not

flame, glow, smolder or smoke when tested in accordance with ASTM C 411 at the temperature to which they are exposed in service. The test temperature shall not fall below 250°F (121°C). Coverings and linings shall be listed and labeled.

Exception: Polyurethane foam insulation that is spray applied to the exterior of ducts in attics and crawlspaces shall ~~have a flame spread index not more than 75 and a smoke-developed index not greater than 450,~~ be subject to all of the following requirements:

1. The foam plastic insulation shall have a flame spread index not greater than 75 and a smoke developed index not greater than 450, when tested in accordance with ASTM E84 or UL 723, using the specimen preparation and mounting procedures of ASTM E2231.
2. The foam plastic insulation shall not flame, glow, smolder or smoke when tested in accordance with ASTM C411 at the temperature to which the foam plastic insulation is exposed in service. The test temperature shall not fall below 250 degrees F (121 degrees C).
3. The foam plastic insulation complies with the requirements of Section 2603 of the *International Building Code.*
~~2~~ 4. The foam plastic insulation is protected against ignition in accordance with the requirements of Section 2603.4.1.6 of the *International Building Code.*

Commenter's Reason: There were two inadvertent omissions when this proposal was accepted by the technical committee. The ducts can be quite hot and, therefore, the foam plastic insulation must meet the requirements of ASTM C411, to avoid it degrading too fast in use. The other omission is that the mounting method for testing to ASTM E84 needs to be added, just like in the charging paragraph. In summary, the exception is for the foam plastic used on the outside of ducts to be tested to ASTM E84 with a flame spread index of 75 and a smoke developed index of 450 (instead of 25/50 when it is inside) and it must be covered by an ignition barrier.

The change to add the word "duct" at the beginning of the sentence is for consistency only.

Public Comment 3:

Proponent : Tony Crimi, representing North American Insulation Manufacturers Association (tcrimi@sympatico.ca) requests Disapprove.

Commenter's Reason: The proposal adds an exception allowing a greater smoke-developed index for some applications of foam plastic insulation on the exterior surfaces of ducts in attics or crawlspaces, but does not offer any substantiation to justify this relaxation for all building types. A plenum is a highly sensitive space, used for handling environmental air distribution to a building. The codes are justifiably very restrictive with regards to all materials which are permitted within air ducts and air-handling systems, yet this proposal would permit foamed palstics with up to 450 smoke developed to be installed without any limitation on the quantities of these materials.

As Approved, this proposal eliminates the requirement for both the 25/50 flame spread and smoke developed requirements, and the need to test for in-service temperature performance using ASTM C411. The ASTM C411 testing applies to the determination of the performance of commercial pipe forms of thermal insulating

materials when exposed to simulated hot-surface application conditions. The term "hot-surface performance" has reference to testing in a simulated end-use temperature. This test method refers primarily to high-temperature insulations that are applicable to hot-side temperatures in excess of 200°F (93°C). By exempting foamed plastic pipe insulations from this testing, they are permitted to be used in any application without a proper evaluation of this hazard. An ignition barrier installed on the outer surface of the foamed plastic will not protect the material from ignition, or from flaming, glowing, smoldering or smoke emission as the Code currently requires for other pipe insulation materials.

While the exception applies to foam insulation meeting the requirements of IBC Section 2603 and the ignition barrier requirements in IBC Section 2603.4.1.6, Ignition barriers are not tested, are not required to prevent smouldering combustion, and do not prevent large quantities of smoke from being emmitted. The IBC and IMC recognize that ignition barriers are not always sufficient to protect foamed plastics. As a result, thermal barriers, which are tested to NFPA 275 and do provide some limitation on the volume of smoke permitted to be emmitted, are often required in critical locations. For example, 1407.10.2 requires MCM's and HPL's to be separated from the interior of a building (not just the plenum) by an approved, tested thermal barrier. Similarly, 2603.4 requires foam plastic shall be separated from the interior of a building by an approved and tested thermal barrier, with some exceptions provided based on performance testing. IBC 2603.5.2 also requires any foam plastic insulation to be separated from the building interior by a thermal barrier, unless special approval is obtained on the basis of Section 2603.9. At a minimum, thermal barrier protection should be required.

We support the comment in the Committee reason which identifies the fact that spray applied foam plastics are becoming more common, and the Codes needs to address those materials. However, the Codes need to do that by identifying appropriate solutions, rather than by relaxing existing fire safety measures in plenums to match the minimum level of protection permitted for interior finishes. There has been no research and insufficient substantiation provided to justify this significant relaxation in fire safety.

Public Comment 4:

Proponent : Tim Earl, representing GBH International (tearl@gbhinternational.com) requests Disapprove.

Commenter's Reason: This proposal as passed referenced flame spread requirements without specifying the proper mounting method. It also failed to reference the requirements of ASTM C411. If this is not corrected with a Public Comment, request disapproval.

M98-15

M99-15

604.7, 202 (New), Chapter 15

Proposed Change as Submitted

Proponent : Lamont Millspaugh, Reflectix, Inc., representing Reflective Insulation Manufacturers Association International (monty.millspaugh@reflectixinc.com)

2015 International Mechanical Code

Revise as follows:

604.7 Identification. External duct insulation, except spray polyurethane foam, and factory-insulated flexible duct shall be legibly printed or identified at intervals not greater than 36 inches (914 mm) with the name of the manufacturer, the thermal resistance *R*-value at the specified installed thickness and the flame spread and smoke-developed indexes of the composite materials. ~~Duct~~ For other than reflective duct insulation, duct insulation product *R*-values shall be based on insulation only, excluding air films, vapor retarders or other duct components, and shall be based on tested *C*-values at 75°F (24°C) mean temperature at the installed thickness, in accordance with recognized industry procedures. The R-value for external reflective duct insulation shall be determined in accordance with ASTM C1668 and the installed thickness shall include the enclosed air spaces.The installed thickness of duct insulation used to determine its *R*-value shall be determined as follows:

1. For duct board, duct liner and factory-made rigid ducts not normally subjected to compression, the nominal insulation thickness shall be used.
2. For duct wrap, the installed thickness shall be assumed to be 75 percent (25 percent compression) of nominal thickness.
3. For factory-made flexible air ducts, the installed thickness shall be determined by dividing the difference between the actual outside diameter and nominal inside diameter by two.
4. For spray polyurethane foam, the aged *R*-value per inch, measured in accordance with recognized industry standards, shall be provided to the customer in writing at the time of foam application.

Add new definition as follows:

SECTION 202 DEFINITIONS

REFLECTIVE DUCT INSULATION A thermal insulation assembly consisting of one or more surfaces that have an emittance of 0.1 or less and that bound an enclosed air space or spaces.

Add new standard(s) as follows:

ASTM C1668-12 Standard Specification for Externally Applied Reflective Insulation Systems on Rigid Duct in Heating, Ventilation, and Air Conditioning (HVAC) Systems

Reason: The purpose of this proposal is to provide clear and specific requirements for reflective duct insulation. This language improves the code by providing installers and building officials with a clear path on the specifications that pertain to this product, as well as adding the appropriate definition and an ASTM standard. The same definition and similar language for reflective duct insulation was approved into the 2015 IRC Section M 1601.3.
Reflective duct insulation is a well-established type of material/system and it has an ASTM standard specification, namely ASTM C 1668 Standard Specification for Externally Applied Reflective Insulation Systems on Rigid Duct in Heating, Ventilation, and Air Conditioning (HVAC) Systems. It has been in the market for over 10 years and has nationwide distribution and installation.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction. The proposal only clarifies the requirements for a type of insulation material that is currenly not properly regulated by the code. It incorporates standard industry practice not presently reflected in the code, but does not make this type of insulation mandatory.

Analysis: A review of the standard proposed for inclusion in the code, ASTM C1668, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M99-15 : 604.7-MILLSPAUGH4868

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This product needs to be stamped with the product R-value for both the insulation alone and the insulation with an air space. The product installation would be better understood if the product-only R-value was indicated. This product is commonly installed without an air space between it and the duct. There is a significant difference in performance between installing the product with an air space and without an air space.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Amanda Hickman, InterCode Incorporated, representing Reflective Insulation Manufacturer's Association International (amanda@intercodeinc.com) requests Approve as Submitted.

Commenter's Reason: Unfortunately, during the hearing, there was some confusion on the part of the Committee regarding reflective duct insulation labeling. These products ARE labeled with the R-values. There are two installation methods. The product can be installed directly around the duct or it can be installed using spacers. There is one R-value for each method.

There is nothing in the code that prohibits the use of reflective duct insulation and, in fact, this product is commonly and widely used throughout the country. To the Committee's point sited in the Report on the Committee Action Hearing, this is exactly why the proposed language is absolutely needed. This language will ensure that proper installation of this product occurs.

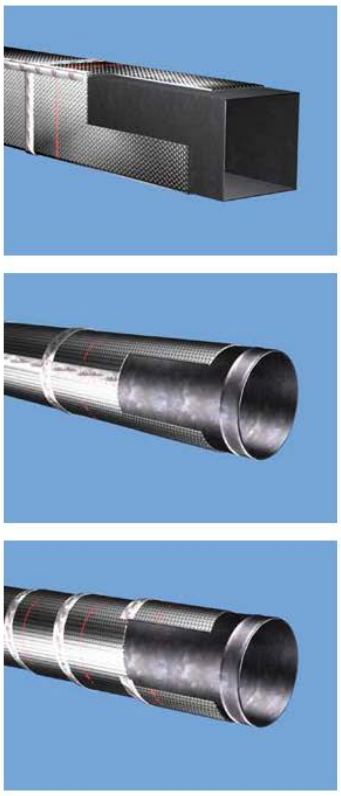
Document to Address Committee "Reason" Issue: Issue pertained to labeling the product with and without an air space incorporated into the assembly.

Industry Standard Labeling Practice: Products that require spacers (to provide stated R-value) are labeled with the product installed directly to the duct (no spacer) and the product installed utilizing a spacer (typically 0.75 inches).

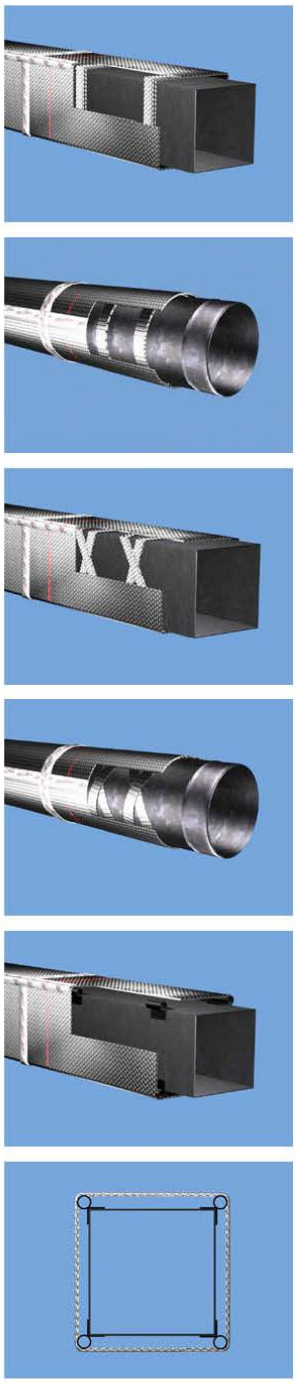
Code Official Verification of Proper Installation: It is a very straight forward exercise to determine if a product is installed with or without a spacer. Simply push on the underside of the product at 5 inch intervals, parallel to the duct, for 25 inches. This will provide verification if the product was installed with or without the spacers.

Graphics Depicting Product Installed With and Without Spacers:

Without Spacers – R-4.2:



With 0.75" Spacers – R-6.0:



M99-15

M101-15
605.4 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Add new text as follows:

605.4 Bypass pathways Air handling equipment and HVAC equipment shall be designed and installed to limit the amount of airflow that bypasses the air filters and shall comply with the following:

1. Channels, racks and other filter retaining constructions that do not seal tightly to the filter frame by means of a friction fit shall be provided with a means to seal the filter frame to the filter retaining construction.
2. Where standard size filters are installed in banks of multiple filters, gaskets shall seal the gap between the frames of adjacent filters. As an alternative to gaskets, the frames of adjacent filters shall be compressed by means of spring elements that are built into the filter retaining construction.
3. Channels, racks and other filter retaining constructions shall be sealed to the duct or housing of the HVAC equipment served by the filters.
4. Filter access doors in ducts and HVAC equipment shall be designed to limit the amount of airflow that bypasses the filters.
5. Field or shop fabricated spacers shall not be installed for the purpose of replacing the intended size filter with a smaller size filter.
6. Gaskets and seals shall be provided with access for repair, maintenance and replacement.

Reason: The proposed text is taken from the 2015 IGCC.
This important fundamental requirement to prevent airflow from bypassing air filters should be a basic requirement in the IMC, not just in a high performance green building code.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because sealing and/or gaskets will be required beyond that which is normally provided in air handling systems.

M101-15 : 802.2-SNYDER3269

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposed text is difficult to enforce and is appropriate for the IGCC, but overkill for the IMC. The equipment manufacturer's instructions already cover this.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

605.4 Bypass pathways Air handling equipment and HVAC equipment shall be designed and installed to limit the amount of airflow that bypasses the air filters. Filter access doors in ducts and ~~shall comply with the following:~~

1. ~~Channels, racks and other filter retaining constructions that do not seal tightly to the filter frame by means of a friction fit~~HVAC equipment shall be~~provided with a means~~designed to~~seal~~limit the~~filter frame to~~amount of airflow that bypasses the~~filter retaining construction.~~
2. ~~Where standard size filters are installed in banks of multiple filters, gaskets shall seal the gap between the frames of adjacent~~ filters~~. As an alternative to gaskets, the frames of adjacent filters shall be compressed by means of spring elements that are built into the filter retaining construction.~~
3. Channels, racks and other filter retaining constructions shall be sealed to the duct or housing of the HVAC equipment served by the filters.
4. ~~Filter access doors in ducts and HVAC equipment shall be designed to limit the amount of airflow that bypasses the filters.~~
5. Field or shop fabricated spacers shall not be installed for the purpose of replacing the intended size filter with a smaller size filter.
6. ~~Gaskets and seals shall be provided with access for repair, maintenance and replacement.~~

Commenter's Reason: The committee felt that the proposed text was overkill and difficult to enforce, so the text was simplfied to capture the basic intent. This text is more detailed in the IGCC and a simple basic version is proposed for the IMC. This text will curtail leakage but will not require absolutely airtight equipment and ducts.

M101-15

M104-15
916.1, CHAPTER 15

Proposed Change as Submitted

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Mechanical Code

Revise as follows:

916.1 General. Pool and spa heaters shall be installed in accordance with the manufacturer's instructions. Oil-fired pool and spa heaters shall be tested in accordance with UL 726. Electric pool and spa heaters shall be tested in accordance with UL 1261, UL 1563 or CSA C22.2 No. 218.1. Gas-fired pool heaters shall comply with ANSI Z21.56/CSA 4.7. Pool and spa heat pump water heaters shall comply with UL 1995, AHRI 1160, or CSA C22.2 No. 236.

Add new standard(s) as follows:

AHRI 1160 (I-P) -09 Performance rating of Heat Pump Pool Heaters

ANSI Z21.56a/CSA 4.7 -2013 Gas Fired Pool Heaters

CSA C22.2 No. 236-11 Cooling Equipment

CSA C22.2 No. 218.1-M89(R2011) Spas, Hot Tubs and Associated Equipment

UL 1563-2009 Standard for Electric Spas, Hot Tubs and Associated Equipment-with revisions through July 2012

Reason: This proposal is needed to ensure consistency with what standards are required for the various pool heaters in Section 316.2 and Table 316.2 of the International Swimming Pool & Spa Code. This same proposal has been submitted to Section M2006.1 of the IRC.

Bibliography: International Swimming Pool & Spa Code, Section 316.2 & Table 316.2

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction and ensures the applicable standards for the various pool heaters are provided within all the I-codes that address pool heaters.

Analysis: A review of the standard proposed for inclusion in the code, AHRI 1160 (I-P), ANSI Z21.56a/CSA 4.7, CSA C22.2 No. 236, CSA C22.2 No. 218.1, UL 1563, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

Public Hearing Results

Committee Action: Approved as Modified

Modification:

916.1 General. Pool and spa heaters shall be installed in accordance with the manufacturer's instructions. Oil-fired pool and spa heaters shall be tested in accordance with UL 726. Electric pool and spa heaters shall be tested in accordance with UL 1261~~, UL 1563 or CSA C22.2 No. 218.1. Gas-fired pool heaters shall comply with ANSI Z21.56/CSA 4.7~~. Pool and spa heat pump water heaters shall comply with UL 1995~~, AHRI 1160,~~ or CSA C22.2 No. 236.

> **Exception:** Portable residential spas and portable residential exercise spas shall comply with UL 1563 or CSA C22.2 No. 218.1.

Committee Reason: Approval was based on the proponent's published reason statements. The modification deletes AHRI 1160 which is already referenced in the IECC. Gas heaters are covered by the IFGC and the new exception recognizes integral heaters in spas listed to UL1563.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

916.1 General. Pool and spa heaters shall be installed in accordance with the manufacturer's instructions. Oil-fired pool and spa heaters shall be tested in accordance with UL 726. Electric pool and spa heaters shall be tested in accordance with UL 1261. Pool and spa heat pump water heaters shall comply with UL 1995 or CSA C22.2 No. 236.

> ~~**Exception:**~~ Portable residential spas and portable residential exercise spas shall comply with UL 1563 or CSA C22.2 No. 218.1.

Commenter's Reason: The proposed new exception is not an exception. It is a requirement consistent with the general requirements of the section.

M104-15

M106-15

929 (New), 929.1 (New), 929.2 (New), 929.3 (New), 929.4 (New), 929.5 (New), 929.6 (New), 929.7 (New), CHAPTER 15

Proposed Change as Submitted

Proponent : Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Mechanical Code

Add new text as follows:

SECTION 929
UNVENTED ALCOHOL FUEL-BURNING DECORATIVE APPLIANCES

929.1 General Unvented alcohol fuel-burning decorative appliances shall be listed and labeled in accordance with UL 1370 and shall be installed in accordance Section 304.1.

929.2 Prohibited use Unvented alcohol fuel-burning decorative appliances shall not be used as the sole source of comfort heating in a dwelling unit.

929.3 Input rating Unvented alcohol fuel-burning decorative appliances shall not have an input rating in excess of 0.25 gallons of fuel per hour (0.95 liters per hour).

929.4 Prohibited locations Unvented alcohol fuel-burning decorative appliances shall not be installed within occupancies in Groups E and I. The location of unvented alcohol fuel-burning decorative appliances shall comply with Section 303.

929.5 Fuel Unvented alcohol fuel-burning decorative appliances shall be used only with the specific fuel marked on the appliance nameplate.

929.6 Ventilation Fresh air infiltration into the room in which the unvented alcohol fuel-burning decorative appliance is installed shall be provided in accordance with the markings on the appliance and the manufacturer's instructions.

929.7 Installation in fireplaces An unvented alcohol fuel-burning decorative appliance shall not be installed in a factory-built fireplace or masonry fireplace except where specifically identified for such use in accordance with the appliance manufacturer's installation instructions.

Add new standard(s) as follows:
UL 1370-11, Unvented Alcohol Fuel Burning Decorative Appliances, with revisions through January, 2014

Reason: This proposal provides requirements for the installation of unvented, self-contained alcohol-fuel-burning appliances. These appliances are intended for decorative purposes, though there may be limited radiant and convection-air comfort

heating. They are not intended to be utilized as a primary heat source. They are not provided with means for duct connection nor is there electrical/mechanical assist of heated air movement, such as a fan-blower assembly. The basic standard used to test and list these products is UL 1370, "Unvented Alcohol Fuel Burning Decorative Appliances", which is an ANSI consensus standard. There are five manufacturers of these appliances.

Denatured alcohol is formulated for the application. As part of the requirements of UL 1370, the appliances are tested for use only with the specific fuel marked on the appliance nameplate. These appliances are limited to a maximum input rate of 0.25 gallons of fuel per hour (0.95 liters per hour). Installation is intended to be in accordance with local codes, the manufacturer's installation instructions and any markings on the appliance. These appliances may be floor mounted or wall mounted. They may be installed in a solid-fuel-burning fireplace adapted for the purpose and, when so marked, in a factory-built solid-fuel-burning fireplace in accordance with the manufacturer's instructions. They are not intended for use in bathrooms or bedrooms nor for institutional use.

Cost Impact: Will not increase the cost of construction
This would permit the use of a new type of equipment to be installed.

Analysis: A review of the standard proposed for inclusion in the code, UL 1370, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M106-15 : 929 (New)-ROBERTS4108

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The quantity of fuel allowed in such units is excessive. The allowable NOx emissions are above the EPA limits for such. These units should be prohibited in other occupancies besides Group E and I.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Bo Manalo, representing EcoSmart Fire (bo@ecosmartfire.com) requests Approve as Submitted.

Commenter's Reason:

I strongly support and urge you to accept Proposal M 106-15. This is long overdue and will minimize the mis-classification of this product category, Unvented Alcohol-fuel Burning Decorative Appliances. Every year, there are approximately 15,000-20,000 installations and this category should be provisioned in the code to ensure that only products listed under the appropriate standard is allowed. It will help eliminate installation of unsafe products.

The current category in the code is too generalized and applies only to Unvented Gas

Appliances. The safety standards used between the two categories are totally different and therefore should be separated to avoid mis-classification. The proposal is covered by the safety standard ANSI/UL 1370 for Unvented Alcohol Fuel-burning Decorative Appliances. The construction, performance, and products of combustion requirements are identical to both categories but listed under different standards. Frequently, the AHJ requires a product listing according to UL127, as provisioned in the IMC. This provision is specifically for gas-fired appliances and added in the code long before Unvented Alcohol Fuel burning appliances were developed.

Agan, I urge you to accept Proposal M 106-15. This will help ensure that this new and popular product category is listed to the appropriate standard and installed safely, properly, and fully provisioned in the IMC.

Public Comment 2:

Proponent : Jonathan Roberts, representing Underwriters Laboratories (jonathan.roberts@ul.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

929.4 Prohibited locations Unvented alcohol fuel-burning decorative appliances shall not be installed within occupancies in Groups E, F, H, I, M, S, and ~~I~~ U. The location of unvented alcohol fuel-burning decorative appliances shall comply with Section 303.

Commenter's Reason: This public comment addresses the committee comments as follows:
"***The quantity of fuel allowed in such units is excessive.***" The quantity of the fuel allowed in these appliances is limited in Section 929.3 to a quart of fuel per hour. The fuel is denatured alcohol, specifically formulated for use in these appliances. The fire code regulates the quantity and storage of flammable liquids used to refill the appliance.

"***The allowable NOx emissions are above the EPA limits for such.***" The established emission levels in ANSI/UL 1370 are the same as required by ANSI Z21.11.2 for unvented room heaters, which is already permitted in Section G2445 of the International Residential Code and Section 621 of the International Fuel Gas Code. The method used in these ANSI standards to measure the emissions is different than the method used by EPA. In ANSI/UL 1370 and ANSI Z21.11.2, the nitrogen dioxide concentration of the combustion products is required to not exceed 0.002 percent in an air free sample, which means any dilution air is factored out, whereas the EPA requirement is an ambient reading.

"***These units should be prohibited in other occupancies besides Group E and I.***" Agree that these units should not be installed in several other occupancies. The proposal now includes those additional occupancies in Section 929.4. These units are intended for installation only in A, B, and R occupancies, as further limited by Section 303.3 of the IMC. These units are intended for decorative purposes, though there may be limited radiant and convection-air comfort heating.

Public Comment 3:

Proponent : Craig Conner, representing self

(craig.conner@mac.com) requests Disapprove.

Commenter's Reason: The IMC committee correctly disapproved M106-15, stating "*The allowable NOx emissions are above the EPA limits for such.*" Unvented alcohol-burning appliances rely on diluting their exhaust pollutants in indoor air, the same air the occupants' breath. Using indoor air to dilute pollutant levels is a very poor way to manage pollutants

Unvented alcohol-burning appliances should not be installed in indoor living or working spaces. These devices exhaust all combustion bi-products, including nitrogen dioxide, into the indoor air. The pollutants can accumulate to unsafe levels; levels that exceed the Environmental Protection Agency's (EPA's) air quality standards. Controls on these devices allow them to burn until the fuel is exhausted, unless manually extinguished. Provisions for combustion and ventilation air are inadequate.

The EPA identifies nitrogen dioxide as one of "six principal pollutants" (1). The nitrogen dioxide levels allowed in exhaust by the unvented alcohol-burning appliance "safety standard" greatly exceed EPA's ambient air quality standard (more below). Pollutants allowed in the exhaust can rapidly raise the pollutant levels in small areas to well above the EPA air quality standards.

Again, the proposed unvented alcohol-burning appliance safety standard, UL 1370, allows exhaust to greatly exceed the EPA's National Ambient Air Quality Standards. But, by how much? UL 1370 limits nitrogen dioxide in exhaust gases to 20,000 ppb (parts per billion) (2). EPA's "primary" air quality standard, an ambient air quality standard, for nitrogen dioxide is 100 ppb (3). Therefore, the exhaust flue gas pollutants, which vent directly into the room air, can be 200 TIMES that of EPA's air quality standard.

How does the flue gas exhaust volume from one hour of unvented alcohol-burning appliance use compare to the volume of the "small" room in UL 1370? UL 1370 small room is 200 cubic feet of room for each 1000 btu/hr of appliance (4). The flue gas volume from one hour of use is about 4% of that minimum room volume (5). If these gases from one hour of use stayed in the room they would be about 8 TIMES the EPA air quality standard in that one hour(6).

One measure of chemical toxicity is the IDLH level (Immediately Dangerous to Life and Health). The National Institute for Occupational Safety and Health value for IDLH for nitrogen dioxide is the same level that the "safety standard" allows unvented alcohol-burning appliances to exhaust(7).

Some nitrogen dioxide does leave the room or is otherwise dissipated. It reacts with surfaces of the room, moves into other rooms or is indirectly exhausted outside after being vented into the indoor air. Sometimes called a "decay rate", this might cut the nitrogen dioxide by half, which still puts a small room well above the EPA's air quality standard. In the second hour of use, the room starts with the nitrogen dioxide from the previous hour at a level already above the EPA standard. Subsequent hours are worse as pollutant levels build.

What are the health effects of increased nitrogen dioxide? According to the American Lung Association(8): inflamed airways, cough and wheezing, reduced lung function, increased asthma attacks, more emergency room and hospital admissions, increased respiratory infection, such as influenza. The ALA notes unvented heaters as one source for nitrogen dioxide. A required warning label from UL 1370 suggests more health issues: "People with breathing problems should consult a physician

before using the unvented decorative appliance."(9) Really? It is wholly unrealistic to expect people to check with their doctor before they go into a building with an appliance.

Homes and buildings can also have other sources of nitrogen dioxide. This can compound the issue further. Gas stoves or ovens usually start with low, but safe, levels of nitrogen dioxide. Buildings near busy roads, freeways, or airports often start with higher levels. Large urban areas tend to be worse; for example Chicago, Detroit, Atlanta, Los Angles, and the northeast corridor are worse. (8) Assuming a higher level is already present, unvented alcohol-burning appliances will further increase that level and more quickly exceed safe levels.

Experience with these devices in Europe is instructive. A European safety study reported: "*Such fireplaces have become increasingly popular in the recent years and simultaneously a number of severe accidents have been recorded. Therefore such appliances are seen to present an emerging safety issue.*" (10) "*... the most common accidents are related to users refilling hot appliances, where the fuel self-ignites spontaneously and burns the user or causes property damage, and accidents related to wall-mounted fireplaces that fall down from the wall and burn nearby users or property. Spilling of fuel is also a common accident, when the fuel gets into closed compartments in the fireplace where it evaporates and causes explosions or deflagration when the fireplace is ignited or when it get hot enough.*" (11)

These devices are sold as simple to install and DIY, which seems likely to add risk of poor installation, and/or falling out and dumping burning fuel.

The same European study did measurements of emissions for four unvented alcohol-burning appliances. It reported "*All four fireplaces exceed the threshold values laid down by WHO* [World Health Organization]. *The excess is from 7 to 30 times higher than allowed and it occurs within the first hour of operation.*" (12)

Combustion air is an issue. UL 1370 requires instruction to the users that "*In a house of typical construction, that is, one that is not of unusually tight construction due to heavy insulation and tight seals against air infiltration, an adequate supply of air for combustion and ventilation is provided through infiltration.*" (13) The terms "*unusually tight construction*", "*heavy insulation*", and "tight seals against air infiltration" are not specifically defined in UL 1370 or the I-codes. Given the greater air tightness required by the current IECC, relying on new building infiltration as ventilation is a poor assumption.

The directions on room size are unreasonable. UL 1307 directs that instructions to the user state "*... if used in a small room where less than 200 cubic feet ... of air space is provided for each 1000 Btu per hour of unvented decorative appliance rating ... the door(s) to adjacent room(s) should be kept open or a window to the outside should be opened at least 1 inch ....*" (13). Unvented alcohol-burning appliances should not rely on the user to open doors or windows for combustion and ventilation air.

The unvented alcohol-burning appliances don't have a thermostat or timer. They burn until manually shut off, or until the fuel is exhausted. Most don't have a device to sense bad air quality. What happens if someone falls asleep in a small room? Given the maximum fuel volume (1.3 gallon) and maximum burn rate (0.25 gallon/h, about 18000 Btu/h) these devices could burn 5 hours, or more at lower rates. Barring the occupants shutting them off, they would burn until the fuel is exhausted no mater what the impact on the occupants, temperature, or air quality.

The IMC committee stated "*The quantity of fuel allowed in such units is excessive*"*;* which is a comment on the volume of fuel in the device, and/or the volume of fuel stored at the home. UL 1370 allows 1.3 gallons of fuel in the devices (14); enough fuel to start a fire or endanger occupants should the device fall. The devices falling off the wall is one scenario the European study warned has occurred. In addition the volume of fuel stored on site presents a risk. The mandatory warning label states (15) "*Always Store (Intended Fuel) Outdoors and Away From Other Fuel Containers.*" This seems likely to be ignored sometimes, as it is much more convenient to store the fuel inside and closer to the use. The fuel is easy to order in quantity on line (16). Up to 32 gallon orders are an option. Again, it would seems likely some of the fuel will be stored near its use, which would also potentially create a fire hazard.

In summary, unvented alcohol-burning appliances pollute the living and working space, and create health and fire hazards. The code should not allow permanently installed unvented alcohol-burning appliances in the living and working space.

Notes:

(1) From the EPA web site:

"*The Clean Air Act … requires EPA to set National Ambient Air Quality Standards … for pollutants considered harmful to public health and the environment.*" "*EPA has set National Ambient Air Quality Standards for six principal pollutants…*"http://www.epa.gov/air/criteria.html

(2) Section 13.10 of UL 1370 limits nitrogen dioxide in the exhaust (called "air free sample") to "0.002 %" or in the units of the EPA air quality standard, this is 20,000 ppb.

(3) From the EPA website:

The 100 ppb is a "*primary standard*" intended to "*provide public health protection, including protecting the health of 'sensitive' populations such as asthmatics, children, and the elderly*". http://www.epa.gov/air/criteria.html

(4) UL 1370 Section 22.2.3 (s)

(5) The calculation of exhaust volume compared to room volume:

Natural gas has 1028 btu/cf. http://www.eia.gov/tools/faqs/faq.cfm?id=45&t=8

Each cf of natural gas vents 8.5 cf of air http://www.engineeringtoolbox.com/fuels-air-flue-gas-d_170.html (Air is only 21% oxygen, other gases are not part of combustion, but are vented also.)

1000 Btu / 200 cf of room volume is the suggested minimum room, or 5 Btu / cf

5 Btu / (1028 Btu/cf) * 8.5 = 0.04, or 4% of the small room volume

(6) Exhaust is 200 times EPA air quality standard. It fills 4% of the room volume.

200 x 0.04 = 8 times EPA air quality standard.

(7) National Institute for Occupational Safety and Health guide to chemical hazards for nitrogen dioxide. http://www.cdc.gov/niosh/npg/npgd0454.html

(8) From the American Lung Association:

http://www.lung.org/healthy-air/outdoor/resources/nitrogen-dioxide.html

(9) UL 1370, Section 22.2.3, subsection "r" #4.

(10) Study of Safety Requirements for Open Stoves or Fireplaces Using Alcohol Fuels. Revision 5.3, May 2010

Hans-Georg Niedermeyer, Bayerisches Staatsministerium für Arbeit und Sozialordnung, Germany: Henrik Persson, SP Technical Research Institute of Sweden, Sweden; Steinar Tegneby, Direktoratet for Samfunnssikkerhet og Beredskap, Norway; Yann Peter, DGCCRF, Bureau E2 – Biens d'équipement, France

Alex Jensen, Sikkerhedsstyrelsen, Denmark; Torben Rahbek, consultant

http://www.sik.dk/content/download/5561/77087/version/1/file/Report+-+Bio+fireplaces+-+v-3+%282%29.pdf

(11) Same study as above. Page 7

(12) Same study as above. Page 11

(13) UL 1370, Section 22.2.3, subsection "s"

(14) UL 1370, Section 7.5.3

(15) UL 1370, Table 20.1

(16) For example- see

http://www.woodlanddirect.com/Fireplace-Accessories/Ethanol-Gel-Fuel-Accessories

M106-15

M109-15 Part I

929.1 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Add new text as follows:

929.1 Air-handler enclosures. Where an air-handler, electric furnace or heat pump unit is installed in an enclosure with a fuel-fired appliance, the circulating air for the air-handler, furnace and heat pump shall be conveyed to the blower housing from outside of the enclosure by continuous air-tight ducts.

Reason: Section 918.4 of the IMC, Section 618.7 of the IFGC and Section G2442.7 of the IRC all address this issue well for fuel-fired warm-air furnaces, but, are silent on other appliances such as fuel-fired water heaters and boilers that are likely to be in the same enclosure. Heat pump units, cooling air-handlers and electric furnaces would have the same effect on appliance vents if the return air was not ducted back to the blower housing. It is not just warm-air furnaces that the code should be concerned about. Any blower can create strong negative pressures in the enclosure where the return is pulled through louvered doors or grilles instead of ducts connected to the blower. A fuel-fired water heater or boiler in the enclosure should be addressed as well as the warm-air furnace in the same enclosure.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction in those cases where the return air for an air handler, heat pump or electric furnace would have been pulled through a louvered door or grille and through the enclosure, instead of through ductwork connected directly to the unit.

M109-15 Part I : 929.1 (New)-SNYDER5976

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: Disapproval is consistent with, and was based on the issues raised for, Parts II and III

Assembly Action : None

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

929.1 Air-handler enclosures. Where ~~an air handler, electric furnace or heat pump unit~~ a gas-fired appliance is installed in a space that also contains an ~~enclosure with a fuel-fired appliance,~~ air handler and the ~~circulating~~ supply air ~~for~~ from the ~~air-handler~~ air handler is conveyed by ducts to spaces outside of the space containing the air handler, ~~furnace and heat pump~~ the return air shall be conveyed ~~to the blower housing~~ from outside of the ~~enclosure~~ space containing the air handler to the air handler by ~~continuous air-tight~~ ducts.

Commenter's Reason: The IFGC, IRC and IMC committees were concerned that the term "enclosure" is not defined and could include an entire floor level. This public comment replaces the term enclosure with a "space containing the appliance' to address that concern and to imitate the current text of Section 618.7 of the IFGC and Section 918.4 of the IMC. The committees also expressed concern that the proposed text would impact direct-vent appliances, however, the IFGC Section 618.7 and IMC Section 918.4 make no special allowance for direct-vent appliances. Direct-vent appliances are not exempt from Sections 618.7 and 918.4 currently nor should they be exempt from this new proposed code section.

M109-15 Part I

M109-15 Part II

305.13 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Fuel Gas Code

Add new text as follows:

305.13 Air handler enclosures. Where an air-handler, electric furnace or heat pump unit is installed in an enclosure with a fuel-fired appliance, the circulating air for the air-handler, furnace and heat pump shall be conveyed to the blower housing from outside of the enclosure by continuous air-tight ducts.

Reason: Section 918.4 of the IMC, Section 618.7 of the IFGC and Section G2442.7 of the IRC all address this issue well for fuel-fired warm-air furnaces, but, are silent on other appliances such as fuel-fired water heaters and boilers that are likely to be in the same enclosure. Heat pump units, cooling air-handlers and electric furnaces would have the same effect on appliance vents if the return air was not ducted back to the blower housing. It is not just warm-air furnaces that the code should be concerned about. Any blower can create strong negative pressures in the enclosure where the return is pulled through louvered doors or grilles instead of ducts connected to the blower. A fuel-fired water heater or boiler in the enclosure should be addressed as well as the warm-air furnace in the same enclosure.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction in those cases where the return air for an air handler, heat pump or electric furnace would have been pulled through a louvered door or grille and through the enclosure, instead of through ductwork connected directly to the unit.

M109-15 Part II : 305.13 (New)-SNYDER5977

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: The proposal is not enforceable and does not account for direct-vent appliances. The term "enclosure" is not defined and could be interpreted as an entire basement.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Fuel Gas Code

305.13 Air handler enclosures. Where ~~an air-handler, electric furnace or heat pump unit~~ a gas-fired appliance is installed in a space that also contains an ~~enclosure with a fuel-fired appliance,~~ air handler and the ~~circulating~~ supply air ~~for~~ from the ~~air-handler~~ air handler is conveyed by ducts to spaces outside of the space containing the air handler, ~~furnace and heat pump~~ the return air shall be conveyed ~~to the blower housing~~ from outside of the ~~enclosure~~ space containing the air handler to the air handler by ~~continuous air-tight~~ ducts.

Commenter's Reason: The IFGC, IRC and IMC committees were concerned that the term "enclosure" is not defined and could include an entire floor level. This public comment replaces the term enclosure with a "space containing the appliance' to address that concern and to imitate the current text of Section 618.7 of the IFGC and Section 918.4 of the IMC. The committees also expressed concern that the proposed text would impact direct-vent appliances, however, the IFGC Section 618.7 and IMC Section 918.4 make no special allowance for direct-vent appliances. Direct-vent appliances are not exempt from Sections 618.7 and 918.4 currently nor should they be exempt from this new proposed code section.

M109-15 Part II

M109-15 Part III

M1602.3 (New)

Proposed Change as Submitted

Proponent : Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Residential Code

Add new text as follows:

M1602.3 Air-handler enclosures. Where an air-handler, electric furnace or heat pump unit is installed in an enclosure with a fuel-fired appliance, the circulating air for the air-handler, furnace and heat pump shall be conveyed to the blower housing from outside of the enclosure by continuous air-tight ducts.

Reason: Section 918.4 of the IMC, Section 618.7 of the IFGC and Section G2442.7 of the IRC all address this issue well for fuel-fired warm-air furnaces, but, are silent on other appliances such as fuel-fired water heaters and boilers that are likely to be in the same enclosure. Heat pump units, cooling air-handlers and electric furnaces would have the same effect on appliance vents if the return air was not ducted back to the blower housing. It is not just warm-air furnaces that the code should be concerned about. Any blower can create strong negative pressures in the enclosure where the return is pulled through louvered doors or grilles instead of ducts connected to the blower. A fuel-fired water heater or boiler in the enclosure should be addressed as well as the warm-air furnace in the same enclosure.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction in those cases where the return air for an air handler, heat pump or electric furnace would have been pulled through a louvered door or grille and through the enclosure, instead of through ductwork connected directly to the unit.

M109-15 Part III : M1602.3 (New)-SNYDER5978

Public Hearing Results

Part III

Committee Action: Disapproved

Committee Reason: The term "enclosure" is not defined. The proposal limits the use of some appliances.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Action Committee requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Residential Code

M1602.3 Air-handler enclosures. Where ~~an air-handler, electric furnace or heat pump unit~~ a gas-fired appliance is installed in a space that also contains an ~~enclosure with a fuel-fired appliance,~~ air handler and the ~~circulating~~ supply air ~~for~~ from the ~~air-handler~~ air handler is conveyed by ducts to spaces outside of the space containing the air handler, ~~furnace and heat pump~~ the return air shall be conveyed ~~to the blower housing~~ from outside of the ~~enclosure~~ space containing the air handler to the air handler by ~~continuous air-tight~~ ducts.

Commenter's Reason: The IFGC, IRC and IMC committees were concerned that the term "enclosure" is not defined and could include an entire floor level. This public comment replaces the term enclosure with a "space containing the appliance' to address that concern and to imitate the current text of Section 618.7 of the IFGC and Section 918.4 of the IMC. The committees also expressed concern that the proposed text would impact direct-vent appliances, however, the IFGC Section 618.7 and IMC Section 918.4 make no special allowance for direct-vent appliances. Direct-vent appliances are not exempt from Sections 618.7 and 918.4 currently nor should they be exempt from this new proposed code section.

M109-15 Part III

M119-15

202 (New), 1104.2.2

Proposed Change as Submitted

Proponent : Jeffrey Shapiro, International Institute of Ammonia Refrigeration, representing International Institute of Ammonia Refrigeration (jeff.shapiro@intlcodeconsultants.com)

2015 International Mechanical Code

Add new definition as follows:

SECTION 202 DEFINITIONS

LOW-PROBABILITY PUMP. A pump that does not rely on a dynamic shaft seal as a singular means of containment to prevent atmospheric release of the pumped fluid.

Revise as follows:

1104.2.2 Industrial occupancies and refrigerated rooms. This section applies only to industrial occupancies and refrigerated rooms for manufacturing, food and beverage preparation, meat cutting, other processes and storage. Machinery rooms are not required where all of the following conditions are met:

1. The space containing the machinery is separated from other occupancies by tight construction with tight-fitting doors.
2. Access is restricted to authorized personnel.
3. The floor area per occupant is not less than 100 square feet (9.3 m^2) where machinery is located on floor levels with exits more than 6.6 feet (2012 mm) above the ground. Where provided with egress directly to the outdoors or into *approved* building exits, the minimum floor area shall not apply.
4. Refrigerant detectors are installed as required for machinery rooms in accordance with Section 1105.3.
5. Surfaces having temperatures exceeding 800°F (427°C) and open flames are not present where any Group A2, B2, A3 or B3 refrigerant is used (see Section 1104.3.4).
6. All electrical *equipment* and appliances conform to Class 1, Division 2, *hazardous location* classification requirements of NFPA 70 where the quantity of any Group A2, B2, A3 or B3 refrigerant, other than ammonia, in a single independent circuit would exceed 25 percent of the lower flammability limit (LFL) upon release to the space.
7. All refrigerant-containing parts in systems with a total connected compressor power exceeding 100 horsepower (hp) (74.6 kW) ~~drive power~~, except evaporators used for refrigeration or dehumidification; condensers used for heating; control and pressure relief valves for either; low-probability pumps; and connecting piping, shall be located either outdoors or in a *machinery room*.

Reason: The modification of the 100 HP power threshold in Item 7 clarifies that this is compressor drive power, which is the terminology used in IIAR 2 Section 4.2.3 and ASHRAE 15 Section 7.2.2(g). The change ensures that the drive power for liquid pumps and other motorized equipment attached to the system is not improperly added.
Recognition of low-probability pumps acknowledges the superior leak resistance of these pumps and encourages their use to increase safety. The approach is modeled after the current IMC approach for low-probability systems, as defined in Chapter 2. Because low-probability systems are inherently more resistant to atmospheric releases than high-probability systems, the IMC permits more widespread use of low-probability systems. With respect to pumps, experience has shown that pump leaks are typically associated with failed seals on rotating (dynamic) parts, which can result in events ranging from a simple nuisance release to a hazardous condition requiring an emergency response. This proposal will encourage the use of pumps that are hermetically sealed or similar in lieu of pumps that rely on dynamic seals to contain refrigerant.

Cost Impact: Will not increase the cost of construction
The proposal will not increase the cost of construction because the first portion of the change is a clarification of current provisions, and the second portion of the change is an optional path to compliance. Standard pumps will continue to be permitted when they are located in refrigerant machinery rooms.

M119-15 : 1104.2.2-SHAPIRO4766

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Approval was based on the proponent's published reason statements.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jeffrey Shapiro, representing International Institute of Ammonia Refrigeration (jeff.shapiro@intlcodeconsultants.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

SECTION 202 DEFINITIONS

LOW-PROBABILITY PUMP. A pump that ~~does not rely on a dynamic shaft seal as a singular means of containment~~ is designed to prevent atmospheric release of the pumped fluid by one of the following methods: 1. The pump is permanently sealed. 2. The pump incorporates a static seal. 3. The pump incorporates not less than two sequential dynamic shaft seals to isolate the pumped fluid from atmosphere at shaft penetrations and automatically shuts down upon failure of any seal.

Commenter's Reason: The definition of low-probability pump is based on correlation with IIAR 2, and the definition in IIAR 2 was updated following approval of M119 in Memphis. This proposal updates the proposed IMC text to maintain correlation between the IMC and IIAR 2.

M119-15

M128-15
1107.2

Proposed Change as Submitted

Proponent : Maureen Traxler, Seattle Dept of Planning & Development, representing Washington Association of Building Officials Technical Code Development Committee (maureen.traxler@seattle.gov)

2015 International Mechanical Code

Revise as follows:

1107.2 Piping location. Refrigerant piping that crosses an open space that affords passageway in any building shall be not less than 7 feet 3 inches (2210 mm) above the floor unless the piping is located against the ceiling of such space. Refrigerant piping shall not be placed in any of the following:

1. a fire-resistance-rated exit access corridor.
2. an interior exit stairway.
3. an interior exit ramp.
4. an exit passageway.
5. an elevator, dumbwaiter or other shaft containing a moving object ~~or in any~~ .
6. a shaft that has ~~openings to living quarters~~ one or ~~to means of egress. Refrigerant piping shall not be installed in an enclosed public stairway,~~ more openings into a dwelling unit or sleeping unit.
7. a shaft that has one or more openings into a fire-resistance-rated exit access corridor, interior exit stairway ~~landing~~ or ramp, or ~~means of egress.~~ exit passageway.

Reason: The current code prohibits refrigerant piping in "means of egress" and in shafts with openings into "means of egress." The IBC definition is "A continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way...." In other words, the means of egress includes all occupied spaces in a building, so prohibiting refrigerant piping in the means of egress means it's prohibited almost everywhere. Section 1107.2 is copied from ASHRAE 15 but this proposal gives it a reasonable interpretation that identifies specific locations where refrigerant piping is prohibited, and allows it to be installed in occupied buildings. This proposal is meant as an interpretation of the term "means of egress" as used in the ASHRAE language, without changing the intended meaning of the term.

Cost Impact: Will not increase the cost of construction
This proposal does not increase the cost of construction because it merely interprets an ambiguous term that is in the current code.

M128-15 : 1107.2-TRAXLER4752

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal does not address living quarters. The term "exit" could condense items 1 through 4 into a single item. The terminology is

inconsistent with the IBC.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jeffrey Shapiro, representing International Institute of Ammonia Refrigeration (jeff.shapiro@intlcodeconsultants.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

1107.2 Piping location. Refrigerant piping that crosses an open space that affords passageway in any building shall be not less than 7 feet 3 inches (2210 mm) above the floor unless the piping is located against the ceiling of such space. Refrigerant piping shall not be placed in any of the following:

1. a fire-resistance-rated exit access corridor.
2. an interior exit stairway.
3. an interior exit ramp.
4. an exit passageway.
5. an elevator, dumbwaiter or other shaft containing a moving object.
6. a shaft that has one or more openings into a ~~dwelling unit or sleeping unit.~~
~~7. a shaft that has one or more openings into a~~ fire-resistance-rated exit access corridor, interior exit stairway or ramp, or exit passageway.

Commenter's Reason: The intent of this proposal is primarily to correct an error in the code. When the provisions in Section 1107.2 were first included in the code, the term "means of egress" was used differently. When the code changed to use a 3-part means of egress (exit access, exit and exit discharge), this section should have been updated to correlate, but it was not. The proposal, as modified by this public comment, provides the necessary update and clarifies that regulations for locating refrigerant piping are only intended to apply to the exit portion of the 3-part means of egress (not the exit access or exit discharge).
When this item was discussed by the committee, it was suggested that Items 1-4 of the proposal could be replaced by the term "exit" to simplify the text, but this is not correct because there are some exit components that are not intended to be captured by Items 1-4, such as exterior exits. Although consolidation is nice when possible, the separate items listed in the public comment are necessary to accurately reflect how the code should be applied.

With respect to committee's comments regarding the exclusion of "living quarters" and terminology issues, there was no intent in the original proposal to fix anything other than the "means of egress" concern. Nevertheless, we attempted to deal with this during the discussion, and things became confused, which led to the disapproval recommendation. Upon further consideration, it is clear that the current provisions that prohibit installation of refrigerant piping in shafts serving dwelling or sleeping areas, living quarters, etc. are unnecessary. Refrigerant concentration limits in ASHRAE 15 already limit refrigerant quantities such that a release into the smallest occupied space will not create an acute health risk for occupants. So, such a release into a shaft connecting to an occupied space, which is an even lesser risk than a release directly into a sleeping area, is likewise not a health risk. Thereby this comments recommends a revision to delete the unnecessary text.

Public Comment 2:

Proponent : Maureen Traxler, representing Washington Assn of Building Officials Technical Code Committee (maureen.traxler@seattle.gov); Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Mechanical Code

1107.2 Piping location. Refrigerant piping that crosses an open space that affords passageway in any building shall be not less than 7 feet 3 inches (2210 mm) above the floor unless the piping is located against the ceiling of such space. Refrigerant piping shall not be placed in any of the following:

1. a fire-resistance-rated exit access corridor.
2. an interior exit stairway.
3. an interior exit ramp.
4. an exit passageway.
5. an elevator, dumbwaiter or other shaft containing a moving object.
6. ~~a shaft that has one or more openings into a dwelling unit or sleeping unit.~~
~~7.~~ a shaft that has one or more openings into a fire-resistance-rated exit access corridor, interior exit stairway or ramp, or exit passageway.

Commenter's Reason: The primary purpose of this code change proposal was to clarify what is meant by "means of egress." Items 1-4 in the proposal clearly specify which elements of a means of egress are prohibited as locations for refrigerant piping. The Committee suggested that items 1-4 could be collapsed under the term "exit." However, since item
Most of the discussion before the Code Development Committee, however, was about "living quarters" and "dwelling units." Some people said the proposed change in terminology would broaden the restrictions on location of refrigerant piping, while others said the change added clarity. On further consideration, we believe the limitation on location of refrigerant piping in shafts with openings into either living quarters or dwelling and sleeping units is onerous and antiquated.

Ballanco: ASHRAE 15 is currently undergoing revisions to correlate with the Building and Mechanical Code. It was recognized that the text used to describe where refrigerant piping cannot be installed was confusing and inconsistent with Building Code language. This proposed change will clarify where refrigerant piping cannot be installed. The modification cleans up the proposal such that it is consistent with ASHRAE 15.

M128-15

M137-15

Table1202.5, CHAPTER 15

Proposed Change as Submitted

Proponent : William Chapin, Professional Code Consulting, LLC, representing Professional Code Consulting, LLC (bill@profcc.us)

2015 International Mechanical Code

Revise as follows:

TABLE 1202.5
HYDRONIC PIPE FITTINGS

MATERIAL	**STANDARD (see Chapter 15)**
Copper and copper alloys	ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.26; ASTM F 1974; ASTM B16.24; ASME B16.51; ASSE 1061
Ductile iron and gray iron	ANSI/AWWA C110/A21.10; AWWA C153/A21.53; ASTM A 395; ASTM A 536; ASTM F 1476; ASTM F 1548
Ductile iron	ANSI/AWWA C153/A21.53
Gray iron	ASTM A 126
Malleable iron	ASME B16.3
PE-RT fittings	ASTM F 1807; ASTM F 2098; ASTM F 2159; ASTM F 2735; ASTM F 2769; ASSE 1061
PEX fittings	ASTM F 877; ASTM F 1807; ASTM F 2159; ASSE 1061
Plastic	ASTM D 2466; ASTM D 2467; ASTM F 438; ASTM F 439; ASTM F 877; ASTM F 2389;

	ASTM F 2735
Steel	ASME B16.5; ASME B16.9; ASME B16.11; ASME B16.28; ASTM A 53; ASTM A 106; ASTM A 234; ASTM A 420; ASTM A 536; ASTM A 395; ASTM F 1476; ASTM F 1548

Add new standard(s) as follows:
ASSE 1061-2011 Performance Requirements for Push Fit Fittings.

Reason: ASSE 1061 Performance Requirements for Push Fit Fittings was originally published in 2006 and referenced in the 2009 IPC. These fittings have been used in the industry for over 15 years.

Cost Impact: Will not increase the cost of construction
Proposal addresses fittings and methods already used in the industry.

Analysis: A review of the standard proposed for inclusion in the code, ASSE-1061, with regard to the ICC criteria for referenced
standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M137-15 : T1202.5-CHAPIN5250

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Approval was based on the proponent's published reason statements.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Gary Morgan, representing Viega LLC (gary.morgan@viega.us) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Mechanical Code

1203.11 Cross-linked polyethylene (PEX) plastic tubing. Joints between cross-linked polyethylene plastic tubing and fittings shall conform to Sections 1203.11.1 , 1203.11.2 and ~~1203.11.2~~ 1203.11.3. Mechanical joints shall conform to Section 1203.3.

1203.11.1 Compression-type fittings. Where compression-type fittings include inserts and ferrules or O-rings, the fittings shall be installed without omitting the inserts and ferrules or O-rings.

1203.11.2 Plastic-to-metal connections. Soldering on the metal portion of the system shall be performed not less than 18 inches (457 mm) from a plastic-to-metal adapter in the same water line.

1203.11.3 Push-fit Joints. Push-fit joints that create a seal on the outside diameter of the tubing shall not be used with tubing that has an EVOH oxygen barrier layer.

1203.16 Raised temperature polyethylene (PE-RT) plastic tubing. Joints between raised temperature polyethylene tubing and fittings shall conform to Sections 1203.16.1 , 1203.16.2 and ~~1203.16.2~~ 1203.16.3. Mechanical joints shall conform to Section 1203.3.

1203.16.1 Compression-type fittings. Where compression-type fittings include inserts and ferrules or O-rings, the fittings shall be installed without omitting the inserts and ferrules or O-rings.

1203.16.2 PE-RT-to-metal connections. Solder joints in a metal pipe shall not occur within 18 inches (457 mm) of a transition from such metal pipe to PE-RT pipe.

1203.16.3 Push-fit Joints. Push-fit joints that create a seal on the outside diameter of the tubing shall not be used with tubing that has an EVOH oxygen barrier layer.

Commenter's Reason: The proponent of this proposal also proposed a floor ammendment to address a concern which exists for using push-to-connect type fittings on hydronic oxygen barrier type PEX and PE-RT tubing containing an EVOH (Ethlene Vinyl Alcohol) layer as the oxygen barrier. The floor modification was a very good one however the technical committee felt that the floor language did not do a good job describing the word "layer" as it pertained specifically to the material of concern in this case the EVOH layer material.
First of all it is widely known and accepted in the hydronics industry that one should never use an OD sealing push-to-connect type fitting on PEX or PE-RT tubing which contains an EVOH layer as the EVOH layer should not be directly exposed to the pressurized water or water/glycol mixture as the EVOH will eventually be dissolved and a potential leak path could allow water to escape between the tube outer wall and the O-Ring seal. All fittings used with EVOH layered PEX or PE-RT hydronic tubing use a fitting design which seals on the ID of the pipe and does not allow the fluid media to come into contact with the EVOH barrier layer.

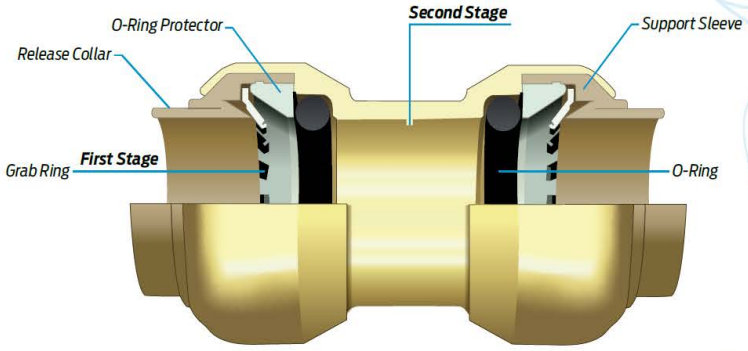
However it is completely appropriate for ASSE 1061 to be included in the hydronics fittings table as there are other pipe types which do not contain an outer EVOH layer (Copper and CPVC) and also there are PEX and PE-RT tubes used without an EVOH layer in systems where no ferrous materials are used. It is for that reason that I am proposing to include the propent's original floor modifications with slight additions describing the layer as one of EVOH material in the sections of the code specific to PEX and PE-RT fittings which would then contain the prohibition from using a OD sealing type push-fitting type joint IF an EVOH layer is present. The original floor modification did not define specfically the EVOH as the layer material which could be problematic and therefore the technical committee rejected the ammendment because of the unclarity of what it means by "layer". My proposal addresses this concern and that of the original proponent.

Please review the attached illustration document which helps explain exactly the details of what is being discussed here. The first drawing illustration shows what a somewhat typical push-to-connect fitting looks like that uses an O-ring to seal against the outermost surface of the tubing. The second photo illustration shows

what PEX looks like with a typical EVOH outer layer. I appreciate your approval of these proposed ammendments to M137.

Public Comment: Supporting information
M137-15 : Adding ASSE 1061 Push-fit fittings to TABLE 1202.5
HYDRONIC PIPE FITTINGS

The SharkBite® connection system uses an advanced push-fit design that works in two stages. When the tube is inserted into the fitting it passes the first stage through a release collar and then through a stainless steel grab ring. The grab ring has teeth that open out and grip onto the tube. At the second stage the tube is pushed through an o-ring protector which aligns the tube. A specially formulated o-ring is then compressed between the wall of the fitting and the tube before the end of the tube reaches the tube stop.



Drawing Illustration courtesy of Reliance Worldwide - SharkBite® Installation Instructions

Photo Illustration courtesy of Watts Radiant – A Watts Water Technologies Company

M137-15

PM1-15

301.4 (New), [A] 110.1, 202 (New),

Proposed Change as Submitted

Proponent : Tom Leatherbee, Oklahoma Floodplain Managers Association, representing Oklahoma Floodplain Managers Association (tleatherbee@cityofdelcity.org); Rebecca Quinn, RCQuinn Consulting, Inc., representing on behalf of Federal Emergency Management Agency (rcquinn@earthlink.net)

2015 International Property Maintenance Code

Add new text as follows:

301.4 Structures located in flood hazard areas. For structures located in flood hazard areas as defined in the International Building Code, all costs of all repairs and improvements necessary to bring the exterior and interior of a structure, excluding exterior property, into compliance with the minimum standards of this code shall be included when determining substantial improvement, including all costs related to correcting cited violations.

Revise as follows:

[A] 110.1 General. The *code official* shall order the *owner* or owner's authorized agent of any *premises* upon which is located any structure, which in the *code official's* or owner's authorized agent judgment after review is (1) so deteriorated or dilapidated or has become so out of repair as to be dangerous, unsafe, insanitary or otherwise unfit for human habitation or occupancy, and such that it is unreasonable to repair the structure, to demolish and remove such structure; or (2) if such structure is capable of being made safe by repairs, to repair and make safe and sanitary, or to board up and hold for future repair or to demolish and remove at the *owner's* option; or (3) where there has been a cessation of normal construction of any structure for a period of more than two years, the *code official* shall order the *owner* or owner's authorized agent to demolish and remove such structure, or board up until future repair; or (4) where structures, if located in flood hazard areas established in the *International Building Code*, are determined to have incurred *substantial damage*, the *code official* shall order the owner to demolish and remove such structure, or board up until future repair. Boarding the building up for future repair shall not extend beyond one year, unless *approved* by the building official.

Add new definition as follows:

SECTION 202 DEFINITIONS

SUBSTANTIAL DAMAGE. Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure as of the date the code official issues an order pursuant to this code.

SECTION 202 DEFINITIONS

SUBSTANTIAL IMPROVEMENT. Any repair, reconstruction, rehabilitation, alteration, addition or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. If the structure has sustained substantial damage, as defined in the International Building Code or the International Existing Building Code, any repairs are considered substantial improvement regardless of the actual repair work performed. For the purpose of this code, the term does not include any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.

Reason: The broad scope and intent of the IPMC can create difficulties for code officials attempting to apply the code to dilapidated structures in flood hazard areas that when those structures are determined to not comply with IPMC provisions intended to ensure public health, safety and welfare. The flood provisions of the IBC, IRC, and IEBC apply to buildings in flood hazard areas if the code official determines that proposed improvements are "substantial improvement" and if the code official determines buildings have incurred "substantial damage. Both terms are defined in the IBC and IEBC and require comparison of costs to market value of the building. Substantial damage may be triggered by damage of any cause. Most damage results from sudden events, such as fire, tornado, earthquake, or flood.
When applied to structures that have been neglected and become dilapidated and unsafe over time, the basic substantial damage and substantial improvement requirements can be undermined by an existing provision in the IBC/IEBC definition of substantial improvement that allows exclusion of costs to correct identified code violations. Once a structure has been cited under the IPMC, it's conceivable that most if not all costs to correct cited conditions could be excluded.

Another aspect of the IBC/IEBC definition for substantial damage is problematic when applied to buildings that have been neglected and become dilapidated and unsafe over time, and that is the determination of market value of the building. When a building is damaged by a sudden event, it is relatively straightforward to determine the market value "before the damage occurred." It is not straightforward when the damage has occurred over time – what date should be used to determine the market value "before the damage occurred"?

This proposal has two objectives: (1) to specify, for substantial damage, the date of the market value is the date the code official issues an order pursuant to the IPMC; and (2) to remove the provision that allows excluding costs to correct cited violations from the substantial improvement determination when an owner proposes repairing a building pursuant to an order issued pursuant to the IPMC.

Section 110.1 is modified by including structures determined to have incurred substantial damage in the list of conditions that warrant an order of demolition or boarding up until future repair. If future repair is pursued by the owner, the substantial damage determination means the repairs would have to bring the building into compliance with the flood provisions in the IBC or IRC, as applicable. One result of this change is that many more owners are likely to consider demolition, in which case replacement structures would have to comply with all requirements of the IBC/IRC, resulting in all the benefits associated with compliance (resistance to all loads, improved fire safety, energy efficiency, etc.).

Section 202 is modified by adding definitions for Substantial Damage and Substantial Improvement; however, both definitions differ from those in the IBC and IEBC. The proposed definition of Substantial Damage makes clear that the market value of the structure is the date of the code official's order pursuant to the IPMC, avoiding an ambiguity. Without this clarification, an owner may claim the market value should be the value of the building before maintenance starting being neglected, which could be many years in the past (and typically not easy to determine). The proposal to specify the market value as of the date of an order is likely be a higher market value (thus raising the 50% threshold) than the market value as of the date an application for a permit to perform repairs is received (which may be a year or more after the citation is issued), as recommended in FEMA guidance in Section 4.5 of FEMA's Substantial Improvement/ Substantial Damage Desk Reference (FEMA P-758).

The proposed definition of Substantial Improvement removes the provision that allows exclusion of certain costs, thus requiring the costs of all work to be included in the calculation.

Section 301 is modified by adding a new section with plain language that makes it clear all interior and exterior costs are included when Substantial Improvement is determined, and emphasizes that all costs of all repairs and improvements necessary to correct existing cited violations must be included.

Without these amendments, dilapidated and unsafe buildings in flood hazard areas might not trigger the substantial improvement and substantial damage requirements, and thus could be repaired and remain vulnerable to future flooding. In many communities, many buildings that are cited under the IPMC are low income housing. If allowed to remain at-risk of flooding, people who have few resources to recover loss of personal property will remain exposed to flooding.

The combined result of these amendments is to strengthen the applicability of the IPMC as it relates to structures in flood hazard areas by identifying substantial damage as a trigger for a demolition order, removing ambiguity with regard to determining market value for substantial damage determinations, and eliminating an enforcement problem created by the exclusion of some repair costs from the substantial improvement calculation.

A real-life example illustrates the difficulties that will be easier to address if this proposal is approved. A code official was faced with ordering demolition of a dilapidated apartment complex that had been damaged by flooding and left unrepaired for several years (see Figure). The code official, pursuant to the IBC and the community's floodplain management regulations, determined that the structures were substantially damaged. The code official concurrently issued a demolition order pursuant to Section 110 of the IPMC, as the structures were unsafe, insanitary, and unreasonable to repair. This demolition order cited specific exterior and interior conditions in making these determinations. Subsequent application for a remodel permit was denied because the work proposed was determined to be substantial improvement, and the applicant did not propose bringing the building into compliance with the flood requirements. On appeal, the property owner challenged the substantial damage/substantial improvement determinations because virtually all of the proposed repairs would be to correct cited violations of the IPMC, and thus the applicant claimed those costs should be excluded from the determination.

Had the code official's order to demolish or bring the building into compliance been overturned, the apartment buildings could have been repaired in a manner that left them at continued risk for flooding, contrary to the intent of IBC 1612 and local flood damage prevention regulations. These specific buildings, as a result of a somewhat unrelated proceeding, were eventually demolished and the land redeveloped with commercial buildings that incorporate significant flood mitigation measures.

Figure. Interior Condition at Kristie Manor Apartments at time of Demolition Order and Substantial Damage Declaration. The buildings had flooded multiple times, each time experiencing further deterioration. Note the high water mark and mold. Had the apartment buildings been repaired without bringing it into compliance with the flood requirements, the structures and occupants would have remained at risk for this sort of damaging and life-threatening flooding due to their location in a floodway.

Bibliography: Substantial Improvement/Substantial Damage Desk Reference, FEMA P-758. Federal Emergency Management Agency. 2010.
http://www.fema.gov/library/viewRecord.do?id=4160

Cost Impact: Will not increase the cost of construction
The effect on costs will vary on a case-by-case basis. There are scenarios where demolishing and rebuilding fully compliant will likely be less expensive than retrofitting or elevating an existing building to bring it into compliance with the flood requirements. Long-term maintenance and operations cost would also be less, and the cost of NFIP flood insurance will be considerably lower. Costs may increase in other scenarios, especially when Substantial Improvement is triggered because costs to correct existing cited violations are not subtracted, although the cost of NFIP flood insurance will be considerably lower than if the building remains at risk to flooding.

PM1-15 : 301.4 (New)-LEATHERBEE4956

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt this change would create a conflict with the IBC and IEBC with regard to the proposed definitions. Also, the definition of substantial improvement is not used as a trigger for any requirements it is only mentioned when calculating costs. The committee also has concerns about the limiting language that would require the property to be boarded up rather than secured against unlawful entry.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Tom Leatherbee, Oklahoma Floodplain Managers Association, representing Oklahoma Floodplain Managers Association (tleatherbee@cityofdelcity.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Property Maintenance Code

SECTION 202 DEFINITIONS

~~**SUBSTANTIAL IMPROVEMENT.** Any repair, reconstruction, rehabilitation, alteration, addition or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. If the structure has sustained substantial damage, as defined in the International Building Code or the International Existing Building Code, any repairs are considered substantial improvement regardless of the actual repair work performed. For the purpose of this code, the term does not include any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.~~

SECTION 202 DEFINITIONS

~~**SUBSTANTIAL DAMAGE.** Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure as of the date the code official issues an order pursuant to this code.~~

301.4 Structures located in flood hazard areas. For structures located in flood hazard areas ~~as defined in the International Building Code~~, all costs of all repairs and improvements necessary to bring the exterior and interior of a structure, excluding exterior property, into compliance with the minimum standards of this code shall be included when determining substantial improvement and substantial damage, including all costs related to correcting ~~cited~~ existing and identified violations. The market value of the structure on the date the code official issues and initial notice of violation or order shall be the market value used to make the substantial improvement or substantial damage determination.

[A] 110.1 General. The *code official* shall order the *owner* or owner's authorized agent of any *premises* upon which is located any structure, which in the *code official's* or owner's authorized agent judgment after review is (1) so deteriorated or dilapidated or has become so out of repair as to be dangerous, unsafe, insanitary or otherwise unfit for human habitation or occupancy, and such that it is unreasonable to repair the structure, to demolish and remove such structure; or (2) if such structure is capable of being made safe by repairs, to repair and make safe and sanitary, or to board up and hold for future repair or to demolish and remove at the *owner's* option; or (3) where there has been a cessation of normal

construction of any structure for a period of more than two years, the *code official* shall order the *owner* or owner's authorized agent to demolish and remove such structure, or board up until future repair~~; or (4) where structures, if located in flood hazard areas established in the *International Building Code*, are determined to have incurred *substantial damage*, the *code official* shall order the owner to demolish and remove such structure, or board up until future repair~~. Boarding the building up for future repair shall not extend beyond one year, unless *approved* by the building official.

Commenter's Reason: Reason: The broad scope of and intent of the IPMC can create difficulties for code officials attempting to apply the code to dilapidated structures in flood hazard areas when those structures are determined to not comply with IPMC provisions intended to ensure public health, safety and welfare. The original code change proposal sought to address these difficulties in multiple ways . The Committee was concerned that the original proposal created a conflict with definitions found in the IBC and IEBC. This Comment removes the definitions, thus relying on the definitions in the IBC and IEBC, while retaining the exclusionary value language that is critical to ensuring that the cost of repairs associated with violations identified under the IPMC are included in determining substantial improvement and substantial damage. Further, the exclusionary language is combined with language creating a valuation date that provides clarity for both the Code Official and the property owner. This comment also modifies the original proposal's use of the word cited, replacing it with "existing and identified", which is more consistent with the language found within the code and within the IBC. This comment restores Section 110.1 to its original language. Without the adoption of this comment, due to the nature of the IPMC and its inherently broad scope, the substantial damage and substantial improvement provisions in the IBC can be effectively undermined whenever a notice of violation or order is issued for affected structures in flood hazard areas.

PM1-15

PM4-15

304.1.1, 305.1.1, 306.1.1

Proposed Change as Submitted

Proponent : David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Subcommittee, National Council of Structural Engineers Associations (dbonowitz@att.net)

2015 International Property Maintenance Code

Revise as follows:

304.1.1 Unsafe conditions. ~~The following~~
Unsafe conditions ~~shall be determined as unsafe and~~ shall be repaired or replaced ~~to comply~~ in compliance with the ~~*International Building Code* or the~~ *International Existing Building Code* . ~~as required for existing buildings:~~

1. ~~The nominal strength of any structural member is exceeded by nominal loads, the load effects or the required strength;~~
2. ~~The *anchorage* of the floor or roof to walls or columns, and of walls and columns to foundations is not capable of resisting all nominal loads or load effects;~~
3. ~~Structures or components thereof that have reached their limit state;~~
4. ~~Siding and masonry joints including joints between the building envelope and the perimeter of windows, doors and skylights are not maintained, weather resistant or water tight;~~
5. ~~Structural members that have evidence of *deterioration* or that are not capable of safely supporting all nominal loads and load effects;~~
6. ~~Foundation systems that are not firmly supported by footings, are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects;~~
7. ~~Exterior walls that are not *anchored* to supporting and supported elements or are not plumb and free of holes, cracks or breaks and loose or rotting materials, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects;~~
8. ~~Roofing or roofing components that have defects that admit rain, roof surfaces with inadequate drainage, or any portion of the roof framing that is not in good repair with signs of *deterioration*, fatigue or without proper anchorage and incapable of supporting all nominal loads and resisting all load effects;~~
9. ~~Flooring and flooring components with defects that affect serviceability or flooring components that show signs of *deterioration* or fatigue, are not properly *anchored* or are incapable of supporting all nominal loads and resisting all load effects;~~
10. ~~Veneer, cornices, belt courses, corbels, trim, wall facings and similar decorative features not properly anchored or that are anchored with connections not capable of supporting all nominal~~

~~loads and resisting all load effects;~~

11. ~~Overhang extensions or projections including, but not limited to, trash chutes, canopies, marquees, signs, awnings, fire escapes, standpipes and exhaust ducts not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects;~~
12. ~~Exterior stairs, decks, porches, balconies and all similar appurtenances attached thereto, including *guards* and handrails, are not structurally sound, not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects; or~~
13. ~~Chimneys, cooling towers, smokestacks and similar appurtenances not structurally sound or not properly *anchored*, or that are anchored with connections not capable of supporting all nominal loads and resisting all load effects.~~

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official*.

305.1.1 Unsafe conditions. ~~The following~~ Unsafe conditions ~~shall be determined as unsafe and~~ shall be repaired or replaced ~~to comply~~ in compliance with ~~the *International Building Code* or~~ the *International Existing Building Code* . ~~as required for existing buildings:~~

1. ~~The nominal strength of any structural member is exceeded by nominal loads, the load effects or the required strength;~~
2. ~~The anchorage of the floor or roof to walls or columns, and of walls and columns to foundations is not capable of resisting all nominal loads or load effects;~~
3. ~~Structures or components thereof that have reached their limit state;~~
4. ~~Structural members are incapable of supporting nominal loads and load effects;~~
5. ~~Stairs, landings, balconies and all similar walking surfaces, including *guards* and handrails, are not structurally sound, not properly *anchored* or are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects;~~
6. ~~Foundation systems that are not firmly supported by footings are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects.~~

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted when *approved* by the *code official.*

306.1.1 Unsafe conditions. ~~Where any of the following conditions cause the component or system to be beyond its limit state, the component or system shall be determined as unsafe~~

Unsafe components and systems shall be repaired or replaced ~~to comply~~ in compliance with ~~the *International Building Code* or~~ the *International Existing*

Building Code ~~as required for existing buildings:~~

1. ~~Soils that have been subjected to any of the following conditions:~~
   - ~~1.1. Collapse of footing or foundation system;~~
   - ~~1.2. Damage to footing, foundation, concrete or other structural element due to soil expansion;~~
   - ~~1.3. Adverse effects to the design strength of footing, foundation, concrete or other structural element due to a chemical reaction from the soil;~~
   - ~~1.4. Inadequate soil as determined by a geotechnical investigation;~~
   - ~~1.5. Where the allowable bearing capacity of the soil is in doubt; or~~
   - ~~1.6. Adverse effects to the footing, foundation, concrete or other structural element due to the ground water table.~~
2. ~~Concrete that has been subjected to any of the following conditions:~~
   - ~~2.1. *Deterioration*;~~
   - ~~2.2. *Ultimate deformation*;~~
   - ~~2.3. Fractures;~~
   - ~~2.4. Fissures;~~
   - ~~2.5. Spalling;~~
   - ~~2.6. Exposed reinforcement; or~~
   - ~~2.7. *Detached*, dislodged or failing connections.~~
3. ~~Aluminum that has been subjected to any of the following conditions:~~
   - ~~3.1. *Deterioration*;~~
   - ~~3.2. Corrosion;~~
   - ~~3.3. Elastic deformation;~~
   - ~~3.4. *Ultimate deformation*;~~
   - ~~3.5. Stress or strain cracks;~~
   - ~~3.6. Joint fatigue; or~~
   - ~~3.7. *Detached*, dislodged or failing connections.~~
4. ~~Masonry that has been subjected to any of the following conditions:~~
   - ~~4.1. *Deterioration;*~~
   - ~~4.2. *Ultimate deformation;*~~
   - ~~4.3. Fractures in masonry or mortar joints;~~
   - ~~4.4. Fissures in masonry or mortar joints;~~
   - ~~4.5. Spalling;~~
   - ~~4.6. Exposed reinforcement; or~~
   - ~~4.7. *Detached,* dislodged or failing connections.~~
5. ~~Steel that has been subjected to any of the following conditions:~~
   - ~~5.1. *Deterioration;*~~
   - ~~5.2. Elastic deformation;~~
   - ~~5.3. *Ultimate deformation;*~~
   - ~~5.4. Metal fatigue; or~~
   - ~~5.5. *Detached,* dislodged or failing connections.~~
6. ~~Wood that has been subjected to any of the following conditions:~~
   - ~~6.1. *Ultimate deformation;*~~
   - ~~6.2. *Deterioration;*~~
   - ~~6.3. Damage from insects, rodents and other vermin;~~
   - ~~6.4. Fire damage beyond charring;~~

~~6.5. Significant splits and checks;~~
~~6.6. Horizontal shear cracks;~~
~~6.7. Vertical shear cracks;~~
~~6.8. Inadequate support;~~
~~6.9. *Detached*, dislodged or failing connections; or~~
~~6.10. Excessive cutting and notching.~~

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official.*

Reason: This proposal corrects errors and removes duplication in the IPMC of provisions already covered more appropriately in the IBC and IEBC.
Unsafe conditions are rare and represent extreme situations. As such, they are outside the general scope (see Section 101.2) and intent (101.3) of the IPMC. Rather, they are more properly addressed by the IBC and IEBC, which already define unsafe conditions to include "inadequate maintenance" and provide remedial administrative procedures (IBC Section 116, IEBC Section 115). In fact, the IPMC relies on the IEBC definitions of unsafe and dangerous, as it does not provide its own definitions in Chapter 2.

Thus, unsafe conditions need only be mentioned in the IPMC to note that they are unacceptable and must be eliminated, which is what this proposal would say. Otherwise, the current listings of specific unsafe conditions are duplicative, often unenforceable, outside the scope of a maintenance code, and in many cases just wrong.

Consider the many references in these three sections to structural elements and their resistance to "nominal loads" and "all load effects." Nominal loads include full Wind and Earthquake loads. Applying these provisions as currently writen would cause every building more than about 20 years old to be labeled dangerous and unsafe even in the absence of deterioration or damage. Further, by referencing structural loads and capacities, simple implementation of the IPMC would require regular assessment by a structural engineer, which is certainly beyond the code's intent.

Consider the many references to structural "soundness." This term is undefined and unenforceable. Provisions requiring structurally sound conditions were removed from the IBC and IEBC for this reason over the last several code cycles.

Consider the several references to a component's "limit state." These references are inappropriate because, as defined in the IBC, there are multiple possible limit states. Merely exceeding a serviceability limit state (especially as contemplated by Section 306.1.1) almost never makes a building or component unsafe.

Consider the many references to deterioration. Deterioration is indeed a sign that maintenance is needed, but it is not a reason to label a building or component unsafe. Similarly, corrosion, elastic deformation, spalling, and cracks (especially as listed in Section 306.1.1) are often normal and are not of themselves reason to label a building or component unsafe. (The IEBC definition of unsafe includes "inadequate maintenance," meaning "not enough to maintain health, safety, and welfare," not merely non-compliant or imperfect maintenance.)

Despite the deletion of these long lists, the proposal results in no loss of substance. As noted, unsafe conditions are already defined and addressed in the IEBC. More specifically, each of the items proposed for deletion is already covered elsewhere in the IPMC. Considering the list in Section 304.1.1:

-- Items 1, 2, 3, 5, 6, and 7 address structural elements and thus are already covered by the IEBC and IBC definition of dangerous.

-- Item 4 is addressed in Section 304.6.

-- Item 8 is addressed in Section 304.7.

-- Item 9 does not even belong in Section 304 but is addressed in Section 305.4

-- Item 10 is addressed in Section 304.8.

-- Item 11 is addressed in Section 304.9.

-- Item 12 is addressed in Section 304.10.

-- Item 13 is addressed in Section 304.11.

Considering the list in Section 305.1.1: Items 1 through 6 address structural elements and thus are already covered by the IBC and IEBC definition of dangerous. Item 5 is additionally addressed by Section 305.4.

Considering the list in Section 306.1.1: Items 1 through 6 address components in terms of their structural materials and properties and thus are already covered by the IBC and IEBC definition of dangerous.

Finally, in addition to removing the inappropriate lists, the proposal requires compliance only with the IEBC, not the IBC, because the IPMC by definition relates to existing buildings, and the IBC no longer has existing building provisions for repair or removal of unsafe conditions.

If approved, a coordinated proposal will be made in Group B to address further duplication and overlap in IPMC Section 108.

Cost Impact: Will not increase the cost of construction
The proposal merely removes duplicate provisions already found in other applicable codes.

PM4-15 : 304.1.1-BONOWITZ5207

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Similar to PM3, the committee felt that the proposal would remove a useful tool for enforcement to remedy unsafe conditions. The IEBC is not triggered until the items on the list are discovered. The committee feels the list needs to be revised to eliminate any conflicts with the IEBC, but the list need to remain. Also, this proposal will limit repairs to the IEBC and would not permit repairs by the IBC.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Committee, National Council of Structural Engineers Associations. (dbonowitz@att.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Property Maintenance Code

SECTION 202 DEFINITIONS

DANGEROUS. Any building, structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:

1. The building or structure has collapsed, has partially collapsed, has moved off its foundation, or lacks the necessary support of the ground.
2. There exists a significant risk of collapse, detachment or dislodgement of any portion, member, appurtenance or ornamentation of the building or structure under service loads.

SECTION 202 DEFINITIONS

UNSAFE. Buildings, structures or equipment that are unsanitary, or that are deficient due to inadequate means of egress facilities, inadequate light and ventilation, or that constitute a fire hazard, or in which the structure or individual structural members meet the definition of "Dangerous," or that are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance shall be deemed unsafe. A vacant structure that is not secured against entry shall be deemed unsafe.

Commenter's Reason:
Each and every sentence in the committee's reason for disapproval is demonstrably false, incorrect, or illogical:

1. "[PM 4] would remove a useful tool for enforcement to remedy unsafe conditions." No, it wouldn't. The current tool is a provision that says unsafe conditions must be repaired using the IEBC. PM 4 would say exactly the same thing, but would properly rely on the IEBC for its consistent definition of "unsafe." Having three unenforceable, incorrect, and duplicative laundry lists of non-conforming (NOT unsafe) conditions does not give the IPMC any more of a tool than the IEBC already provides. On the contrary, its many errors and misjudgments could tie the hands of building officials, reducing their discretion.

2. "The IEBC is not triggered until the terms on the list are discovered." This is a true statement, but it has nothing to do with PM 4, which does not affect this logic at all. First, you discover apparently unsafe conditions, then you repair them. PM 4 merely refers the user, properly, to the definition of "unsafe" in the IEBC -- consistent with IPMC section 201.3.

3. "The committee feels the list needs to be revised to eiminate conflicts with the IEBC, but the list need [sic] to remain." Eliminating conflicts is exactly what PM 4 would do; it is the list itself that represents the conflict. The way to eliminate conflicts is to follow the general practice of all the I-codes, including IPMC 201.3, and use consistent terms and definitions throughout. Retaining three separate lists like those addressed by PM 4 violates this principle and makes the IPMC laughably unenforceable.

HAVING SAID THAT, if IPMC users really feel that a list of unsafe conditions is needed, it happens that just such a list is already available: It is the existing definition of Unsafe, straight from the IEBC. Referencing this list of unsafe conditions in the IPMC achieves the committee's goal. By ICC standard practice, and as stipulated already in IPMC section 201.3, it is not strictly necessary to repeat definitions from one code to another. However, if the committee wants the convenience of having a list of unsafe conditions printed right in the IPMC, it can get there by simply approving this public comment and adding the two definitions as shown. (Only the definition of Unsafe is really needed here. The definition of Dangerous is included only because the definition of Unsafe refers to it, so for similar convenience it should be included in the IPMC as well.)

Members will notice that the definition of Unsafe already includes "inadequate maintenance." Thus, the current definitions give the code official all the discretion he or she needs, without having to list, in three separate places, all sorts of conditions that are not about maintenance, are not necessarily unsafe at all, and that ultimately tie the code official's hands and reduce the IPMC's credibility. (Please see the original PM 4 reason statement for details.)

4. "This proposal will limit repairs to the IEBC and would not permit repairs by the IBC." This statement refers to the fact that PM 4 deletes the reference to the IBC because the IBC no longer covers repair. Contrary to the committee's reason, IBC Section 101.4.7 and Chapter 34 refer themselves to the IEBC for repair. If the IPMC is to be taken seriously, it must keep its provisions and coordination with other codes current.

Additionally, misleading testimony in opposition was given at the hearings. An opponent read from the definition of Dangerous to show that it was not as broad as the listed items PM 4 proposes to delete. This was misleading because PM 4 refers to the IEBC definition of Unsafe, which is far broader than the definition of Dangerous and encompasses the scope of the IPMC's lists -- only without their errors and inconsistencies. But because the misleading testimony was given in re-rebuttal, it could not be corrected by the proponent.

We refer members to the original PM 4 reason statement for a detailed accounting of where the current IPMC text is incorrect, and why deleting these lists will result in no loss of substance to the IPMC and no loss of code "tools" for the building official. The text proposed by PM 4 for deletion is commentary at best, error-filled at worst. Leaving it in the IPMC, contrary to the existing defined terms already cited by IPMC 201.3, makes the IPMC meaningless, if not harmful, to effective building regulation.

The IPMC committee's reasoning is 100% wrong. If the IPMC won't maintain this code, they're making the work of ICC members that much harder. If they won't do the job, you can do it for them by overturning the committee and approving PM 4 EITHER As Submitted or As Modified by this public comment.

PM4-15

PM5-15

505.4, 505.5 (New), 505.6 (New), 505.7 (New), 505.8 (New)

Proposed Change as Submitted

Proponent : Ronald George, Plumb-Tech Design & Consulting, www.Plumb-TechLLC.com, www.ScaldPrevention.org, representing Self; Plumb-Tech Design & Consulting Services LLC; www.ScaldPrevention.org (Ron@Plumb-TechLLC.com)

2015 International Property Maintenance Code

Revise as follows:

505.4 Water heating facilities. Water heating facilities shall be properly installed, maintained and capable of providing an adequate amount of hot or tempered water to be drawn at every required sink, lavatory, bathtub, shower and laundry facility ~~at a minimum temperature of 110°F (43°C).~~ . A gas-burning water heater shall not be located in any *bathroom*, *toilet room*, *bedroom* or other occupied room normally kept closed, unless adequate combustion air is provided. An *approved* combination temperature and pressure-relief valve and relief valve discharge pipe shall be properly installed and maintained on water heaters.

Add new text as follows:

505.5 Maximum Hot Water Temperatures

1. The maximum hot water temperature flowing from any kitchen sink faucet shall be 130 degrees Fahrenheit.
2. The maximum hot water temperature flowing from a lavatory faucet, shower head, bathtub filler faucet bathtub/shower combination, or whirlpool bathtub filler faucet shall be 120 degrees Fahrenheit (48.8 degreess Celcius).
3. The maximum temperature flowing from a bidet faucet shall be 110 degrees Fahrenheit (43 degrees Celcius)
4. The burner control thermostat on the water heater shall not be used to control the hot water distributiuon temperature for conformance to the above hot water temperature limit requirements.

505.6 Minimum Hot or Tempered Water Temperatures

1. The water temperature flowing from a lavatory shall be capable of reaching a minimum of at least 85 degrees Fahrenheit.
2. The water temperature flowing from a kitchen sink shall be capable off reaching a minimum of at least 120 degrees F.
3. The water temperature flowing from a shower, tub/shower, bathtub or whirlpool bathtub shall be capable of reaching a minimum of at least 110 degrees F.
4. The water temperature flowing from a shower, tub/shower, bathtub or whirlpool bathtub shall be capable of reaching a

minimum of at least 110 degrees F.

505.7 Water Heater Replacement - Capacity When a water heater is replaced, it shall be replaced with a water heater of the same delivery capacity in gallons per hour. When Calculating gallons per hour the temperature rise shall be based on the same temperature rise as the prior heater. If no temperature rise is known, the temperature rise shall be based on a 100 degree rise.

Exception: Where the water heater manufacturer's sizing calculations or other published water heater sizing calculations show the first hour delivery capacity of the selected water heater is adequate for the installation.

505.8 Water Heater Replacement or system temperature changes When a water heater is added, replaced, serviced or adjusted or if a temperature actuated mixing vale serving the hot water distribution system is adjusted, the distribution system temperatures checked to verify the temperaturres do not exceed the limits prescribed in section 505.5 to minimize the risk of scalding.

The existing domestic hot water system shall be checked to verify if the existing shower valve and/or combination tub/shower valve has a code compliant pressure or temperature compensating type, anti-scald shower valve with a maximum temperature limit-stop adjuistment conforming to ASSE 1016/ASME A112.1016/CSA B125.16, Performance requirements for automatic compensating valves for individual showers and tub/shower combinations. After the water heater has been installed and the thermostat has been adjusted to the recommended temperature and allowed to heat up until the burner shuts off, or after a thermostatic mixing valve is adjusted to a new temperature, check and adjust the maximum temperature limit-stop on every shower and tub/shower combination valve to limit the hot water temperature to a maximum of 120 Fahrenheit for scald protection. Also,adjust the outlet temperature of each point-of-use, in-line temperature limiting valve serving bathtubs, whirlpool bathtubs, or lavatories in accordance with the manufacturer's installation instructions to limit the hot water temperature to a maximum of 120 Fahrenheit for scald protection.

The thermostat on the water heater shall not be used to control the hot water distribution temperature for scald protection.

If a non-code compliant shower or tub/shower valve is present, one of more of the following methods shall be provided in the domestic hot water system to minimize the risk of scalding:

1. Replace non-code compliant shower or tub/shower valves with a code compliant shower valve conforming to ASSE 1016/ASME A112.1016/CSA B125.16, Performance requirements for automatic compensating valves for individual showers and tub/shower combinations shall be installed with the temperature limit stop adjusted in accordance with the manufacturers installation instructions to limit the hot water temperature to a maximum of 120 degrees Fahrenheit to minimize the risk of scalding. or
2. Provide a Master Temperature Actuated Mixing Valve conforming to ASSE 1017 Temperature Actuated Mixing Valve for Hot Water

Distribution Systems at the water heater to limit the hot water temperature to a maximum of 120 degrees Fahrenheit to minimize the risk of scalding.or

3. Provide a water temperature limiting valve at or near each fixture outlet used for bathing or showering in accordance with the requirements of ASSE 1070 Water Temperature Limiting Devices located near the non-code compliant bathtub/shower or bathtub fixtures to limit the hot water temperature to a maximum of 120 degrees Fahrenheit to minimize the risk of scalding. or
4. Provide a Temperature Actuated, Flow Reduction (TAFR) valve conforming to ASSE 1062 Temperature Actuated, Flow Reduction (TAFR) Valves for Individual Supply Fittings at the shower head and at the tub fillerspout where a combination tub/shower fixture is installed and for any other fixtures used for bathing or showering to limit the hot water temperature to a maximum of 120 degrees Fahrenheit to minimize the risk of scalding

Add new standard(s) as follows:

ASSE 1016-2011/ASME A112.1016-2011/CSA B125.16-2011 Automatic Compensating Valves for Individual Shower & Tub/Shower Combinations

ASSE 1017-2010 Temperature Actuated Mixing Valves for Hot Water Distribution Systems

ASSE 1062-2006 Temperature Actuated, Flow Reduction (TAFR) Valves for Individual Supply Fittings

ASSE 1070-2004 Water Temperature Limiting Devices

Reason: There is currently no provisions in the code to require unsafe existing plumbing installations to where scalding is a hazard. Hundreds of people are scalded each year where non-code compliant (Two-handle) shower valves are installed. This code change is iintended to address this and other hot water scald hazards in existing installations.

What are safe hot water temperatures?

By Ron George
President, Ron George Design & Consulting Services

Plumbing Engineer Magazine Aug 2009

I am often asked, "What is a safe hot water temperature for domestic hot water?" If you read the model codes, it states the maximum hot water temperature for a shower or bathtub is 120 degrees Fahrenheit. If you read the warning labels on the side of most water heaters the maximum hot water temperature is 120 degrees Fahrenheit on some labels and 125 degrees Fahrenheit on other labels. The 125 degree limit probably allows for some temperature loss before the hot water gets to the fixtures. Most water heater literature and warning labels mention the availability of thermostatic mixing valves or automatic temperature compensating valves and they recommend their use. If you look at many of the industry standards for shower mixing valves, they state the valves must have limit stops that are adjustable to limit the maximum hot water temperature to 120 degrees Fahrenheit. The testing in the standards gives test criteria for testing the shower valves to these limits.

I have served on the working groups for several plumbing industry standards committees for temperature actuated mixing valves and shower valves and it is generally agreed that 120 degrees is the maximum, safe hot water temperature. I also have served on hot water system design standards committees where the participants had agreed that maximum domestic hot water temperature from

plumbing fixtures used for bathing and washing purposes should be 120 degrees Fahrenheit. There were a few exceptions for bidets, sitz baths and whirlpool tubs that had temperatures lower than 120 degrees Fahrenheit for the recommended maximum temperatures to prevent scalding. It also should be noted that some other uses like commercial dishwashers and laundries may need temperatures higher than 120 degrees Fahrenheit. There were two temperatures discussed for each fixture during the design standard meetings. One was the "use temperature" and the other was "the maximum temperature" to prevent scalding.

It's generally agreed that 120 degrees Fahrenheit is the maximum safe hot water temperature that should be delivered from a fixture. Therefore hot water above 120 degrees Fahrenheit can be considered hazardous. Model codes address this in various plumbing code sections…

…The codes generally agree if there is a hazardous condition or a condition that is unsafe or a nuisance to life, health and property it should be corrected but in the existing building code and property maintenance code there is little guidance. It is also generally agreed that water above 120 degrees Fahrenheit at fixtures for bathing and washing with a few exceptions for lower temperatures can be considered dangerous and proper precautions should be taken to prevent the hot water from being a scalding hazard by using the proper safety devices.

When I hear about people setting their water heater to 120 degrees Fahrenheit to prevent scalding, I know they have good intentions, but most people do not know you cannot accurately control the hot water temperature leaving a water heater with the thermostat dial.

Maximum Hot Water Temperature to Prevent Scalding

I have served on many industry committees dealing with hot water system code requirements, hot water system design standards and product standards related to domestic hot water systems devices for temperature control and scald prevention. There has been consensus in all of these committees that the maximum safe hot water delivery temperature for a shower or bathtub is 120 degrees Fahrenheit to prevent scalding with a few exceptions for lower temperatures for bidets and emergency eye wash fixtures. (See the attached Figure 1 - Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children)
There were discussions in a plumbing code ad-hoc committee on temperature limits for the hot water system where everyone agreed the maximum safe temperature was 120 F. The ASPE Hot water committee dealing with a proposed standard for temperature limits in hot water systems also agreed the maximum safe hot water temperature to prevent scalding is 120 Fahrenheit. Several ASSE working groups that I have served on dealing with hot water temperature controls have all have discussed the reaction time of bathers and they have taken into consideration that children, the elderly and people with disabilities usually take longer to get out of harm's way if the water suddenly gets hot and they agreed 120 Fahrenheit is the maximum safe hot water temperature that a valve should deliver. At 120 F it takes about 80 seconds to develop a second degree burn in a child and it takes about 8 minutes to develop a second degree burn in an adult. (See Figure 1) The 120 Degree F temperature limit gives bathers or users an adequate amount of time to get out of harm's way before an irreversible scald burn injury can occur. Each of these committees looked back to the data that was the result of burn studies done by Dr. Moritz and Dr. Henrique's at Harvard Medical College in the 1940s. The burn studies were done using baby pigs that had skin thicknesses similar to that of adult males. The studies exposed the pig's skin to various temperatures of hot water for various periods of time and the severity of the burns were studied and recorded. These were the studies used to develop the time and temperature exposure charts. There have been numerous white papers, seminars, and reports since then discussing the fact that burns can occur quicker than those recorded in the Moritz & Henrique's studies for adult males. The skin is thinner for children and the elderly and the amount of time to receive an irreversible 2nd degree burn injury is less because their skin is thinner. Many of the white papers use the Moritz and Dr. Henrique's original burn studies and they use a ratio of the skin thickness to come up with burn

times for thinner skin of children and the elderly. Children, the elderly and handicapped are also slower to react because it takes them more time to realize what is happening and try to react to get out of harm's way. Someone once told me an apartment complex was not intended for children or the elderly. I said everyone grows old and children often come visit so we need to consider prevention of scalds to children, the elderly and people with disabilities more so than burns to adults because burns can occur quicker for those groups.

The PIEV Theory for Reaction Time

There is a PIEV theory relates to reaction time. The PIEV theory is most commonly used to address braking distance in automobile accidents. It addresses the amount of time it takes a driver to sense a problem and decide to react, then the reaction time is added to the braking time for the total distance that a car travels before stopping. The PIEV theory can also apply to reaction times for a bather with respect to hot water scalds.

PIEV relates to the amount of time it takes a person to react to a hazard. PIEV means - Perception, Intellection, Emotion and Volition. It is usually referred to as the PIEV theory. Before we recognize and react to a hazard, four specific areas of activity need to be processed by the brain for the muscles to react. Those processes are:

1. **Perception** - We need to perceive or gain a Perception of a hazard. There can be delays in the perception with limitation in sight, sound, feeling, or any other of our senses.

2. **Intellection** - We go through a period called, Intellection or the act or process of using the intellect by thinking or reasoning. The bather must determine if the hazard is legitimate and deciding either move out of the way of the hazard or eliminate the hazard by adjusting the controls or in some cases where the bather may be sitting out of the reach of the controls the bather may choose to pull the shower curtain in front of them. If the adjustment of the controls is the choice one must decide which control to turn and try to remember which way to turn each control to adjust the temperature or turn the water off in order to eliminate the hazard. If a wrong choice is made during this process it could compound the situation by making the water even hotter. I travel a lot and I often find that shower controls can be very confusing with respect to how to adjust the controls. I still find two handle shower controls that do not meet code requirements. This is critically important when there is no temperature limit on the shower controls. For example if the shower has a two-handle shower valve and 160 degree hot water is supplied to the system, then turning of the cold water first could lead to instant scalding injuries. Turning down the hot water to 120 F or below creates a system where it could incubate Legionella Bacteria to very high levels.

3. **Emotion** - There is an Emotion or evaluation factor which is defined as a conscious mental reaction (as anger or fear) subjectively experienced as strong feeling usually directed toward a specific object and typically accompanied by physiological and behavioral changes in the body with respect to deciding or assessing how we want to react. A person with reduced mental capacity or someone that is just very old will take longer to process this information and ultimately decide to react.

4. **Volition** - There is the physical Volition or deciding/choosing to act and acting. In the case of braking distance it is when the choice is made to move the foot from the gas pedal to the brake pedal and pressing on the brake pedal. This can be related to the time the bather chooses to adjust the control, and they move their hand to the shower control valve, plus the time to rotate or re-adjust the shower valve plus the time from the adjustment until the water temperature changes coming out of the shower head. Often it can take as much as 3-5 seconds to re-adjust the shower head and another few seconds until the water temperature changes coming out of the shower head. For ultra-low-flow (ULF) showers the delay from the time of the adjustment of the shower valve until the water temperature changes coming out of the shower head can be even longer. So burns can become more severe with ULF shower heads. This is one more area where water conservations measures can unintentionally make plumbing systems less safe.

As the temperature of the water increases this PIEV reaction time becomes more important. Using a bathtub/shower controller with a single handle would reduce the

mental processing time and reduce the possibility of making an error when turning off the water. As Figure 1 shows the higher the temperatures get, the quicker the burns can occur. within seconds or less and the degree and severity of the burn can be affected by this reaction time.

As you can see by the chart in Figure 1, if the water is at 140 F it will take about 0.8 seconds for a child to receive a 2nd degree irreversible burn injury and it will take about 5.6 seconds for an adult male to receive an irreversible burn injury at 140 degrees F. Everyone else will fall somewhere in between. An adult will often find it very difficult to react to a sudden change in temperature within five (5) seconds. If the shower head is an Ultra-Low-Flow (ULF) shower head the delay can be several seconds longer before the water temperature is reduced because the mixed water temperature must evacuate or flush out the hot water in the pipe riser from the shower valve to the shower head. There is basically very little or no time to react at higher temperatures. For a typical adult that is alert and aware the PIEV theory shows it can take well over five (5) seconds to react to a sudden burst of hot water in a shower. For an elderly person or a small child that is confused it could take several minutes or more before they are able to react and adjust the controls or get out of harm's way. There has been a lot of information that suggests reducing the domestic hot water temperature to 120 F or less as it flows from the fixtures will minimize scalding and allow most people to react or get out of harm's way before a scald injury occurs.

Reducing the water temperature flowing from the fixture can be done in several ways by:

1. Reducing the hot water temperature at the fixture by adjusting the maximum temperature limit-stop on the shower valve. (The best way)
2. Using local mixing valves conforming to ASSE 1070 to reduce the hot water temperature flowing from a faucet.
3. Reducing the temperature at the source (Water Heater) with the use of a master mixing valve or temperature actuated mixing valve conforming to ASSE 1017.
4. For existing non code compliant shower or tub/shower installations, Two handle tub/shower valves without a maximum temperature limit adjustment) an ASSE 1062 valve could be used. An ASSE 1062 valve is a Temperature Actuated Flow Reduction (TAFR) valve. It looks like a chrome pipe coupling and it screws on between the shower head and the shower arm. Other models screw into a tub spout or onto a sink faucet in place of the aerator. If the water flowing from fixture exceeds about 117-120 degrees Fahrenheit the TAFR valve will shut the flow of water down to just a trickle so that scalding hot water does not spray onto the bather. It can be reset by adjusting the fixture control valve to a cold water setting and when the cold water reaches the valve it will reset and begin flowing again. This can be a bit of a nuisance in buildings where the hot water temperature is erratic, but it is an inexpensive way to provide protection against scald injuries in older buildings without code compliant shower valves.

Water Heater Thermostats Do Not Control the Water Heater Outlet Temperatures

If you adjust the water heater thermostat for the burner or heating element on a water heater down to 120 degrees, it will not prevent scalding. Water heater thermostats cannot be relied upon to control the hot water temperature leaving a water heater. Water heater manufacturers recommend that installers set thermostats at 120 - 125 F, and most of them ship the water heaters at an even lower temperature setting. It is not possible to set a water heater thermostat at a given temperature and get a relatively constant temperature of hot water from a water heater. The thermostat can not accurately control the water heater outlet temperature with a water heater thermostat.

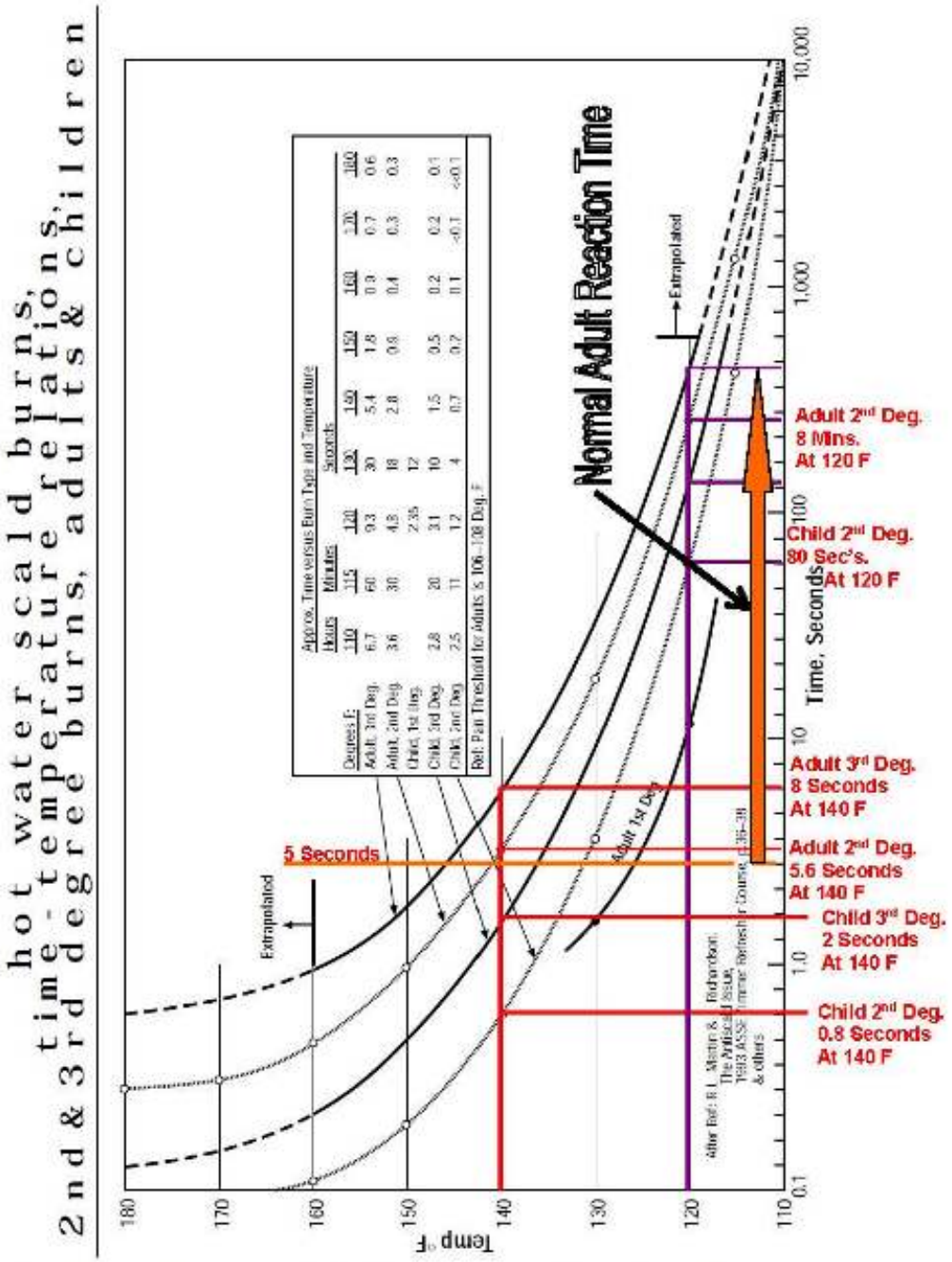
My experience has been that not many people know that water heater thermostats cannot control the outlet temperature of a water heater. This warrants an explanation of how a water heater thermostat works so everyone understands the dial on the water heater does not have the accuracy to control the outlet temperature of storage type heater.

Water heater thermostats do not provide precise temperature controls for hot water systems. For example: the thermostat dial calibration test of ANSI Z21.10.1-1998, which is the applicable standard for gas-fired water heaters, allows the temperature to vary 10 degrees above or below the thermostat setting. I have talked to water heater manufacturers that have indicated that the controls can vary as much as 15 to 18 degrees Fahrenheit above or below the set point of the thermostat. From my experience, I have recorded the temperature leaving the top portion of a water heater over a long period of time during intermittent uses and saw temperature swings over 40 degrees Fahrenheit leaving the water heater. The shower valve standards do not have this kind of temperature fluctuation included their testing for all types of shower valves. The significant temperature swings are because the thermostat is inserted into the lower portion of a water heater tank and turns the fuel supply to the heater on and off. Most new water heater thermostat dials have no way to know what the temperature in the tank is. There is rarely a fixed temperature indicated on the dial, however some manufacturers publish temperatures associated with various marks on the thermostat dial or in their literature even though the dial cannot not control the outlet temperature of the water heater, it only controls when the energy to the heater is turned "on" and "off" by sensing the cold water coming into the bottom of the heater.

Generally, if the water heater thermostat dial is set at 120 degrees Fahrenheit, the burner would come on when the temperature at the thermostat reaches about 105 degrees Fahrenheit. The burner stays on until the water around the thermostat which is near the bottom of the heater reaches about 135 degrees Fahrenheit. (The "burner off" temperature is about 30 degrees higher than when the burner came "on" and generally about 15 degrees above the theoretical set point of the thermostat).

Most people don't realize that the maximum temperature limit test of the ANSI Z21.10.1 Gas Water Heater Standard allows the outlet water temperature of the water heater to rise significantly above the thermostat setting. This provision in the standard accounts for the phenomenon known as "stacking" or "thermal layering". The hot water is less dense and rises to the top of the hot water tank. Just like hot air rises and lifts a hot air balloon, hot water rises to the top of the tank and the cooler water drops to the bottom of the tank. Stacking or thermal layering occurs when the hot water rises to the top of the heater due to recurring short duration heating cycles caused by a frequent number of small quantity hot water uses. Frequent short draws cause cold water to enter the bottom of the water heater where the thermostatic element senses the cold water from the turbulent flow stirring in the bottom of the heater. The cold water causes the water heater to cycle on. This phenomenon can occur in any type of storage water heater and generally is more significant in vertical heaters.

I have recorded temperatures as high as 150 to 166 degrees Fahrenheit at the top of water heaters that had the thermostats set between 120 to 125 degrees Fahrenheit. Temperatures over 151 degrees Fahrenheit are extremely high temperatures and can cause serious scald burns in only a two seconds of contact with the skin. (See Table 1 - Water Temperature Effects on Adult Skin) It should be noted that the time temperature relationships in Table 1 are based upon the thickness of the skin for adult males. Children and the elderly typically have a thinner layer of the skin or epidermis and the exposure times can be shorter or the same burns can occurs in a given time at slightly lower temperatures.
Source: http://www.plumbingengineer.com/aug_09



A Seminar and Technical Paper for the 25-28 Oct. 98 Annual ASPE Meeting at the Indianapolis Convention Center in Indianapolis, Indiana. Reprinted by Watts Regulator Company with permission of Dr. D. Bynum Jr.

Figure 1 – Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children.
(Notes By: Ron George, CPD, See: www.ScaldPrevention.org)

Bibliography: www.Plumb-TechLLC.com
www.ScaldPrevention.org

www.plumbingengineer.com

Cost Impact: Will increase the cost of construction
The cost impact is minimal. The health and safety impact is one of the most significant health and safety related code changes to existing buildings in years. This code change will save countless lives and prevent countless life altering, very painful scald injuries.

Analysis: A review of the standard proposed for inclusion in the code, ASSE 1016-2011/ASME A112.1016-2011/CSA B125.16-2011, ASSE 1017-2010, ASSE 1062-2006 and ASSE 1070-2004, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

PM5-15 : 505.4-GEORGE5206

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt this proposal would place retroactive requirements into the code. Also, Section 505.5, Item 2 specifies a maximum temperature of 120 degrees Fahrenheit which conflicts with the IPC and ASHRE 90.1 for a maximum temperature of 110 degrees Fahrenheit from lavatory faucets in public facility restrooms.

Assembly Action : None

Analysis. For staff analysis of the content of ASSE 1016/ASME A112.1016/CSA B125,1611, ASSE 1017-2010, ASSE 1062-2006 and ASSE 1070-04 with regard to the ICC criteria for referenced standards (Section 3.6 of CP #28), please visit: http://www.iccsafe.org/wp-content/uploads/2015-Proposed-Standards-Group-A-Final.pdf.

Individual Consideration Agenda

Public Comment 1:

Proponent : Ronald George, representing Self (Ron@Plumb-TechLLC.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Property Maintenance Code

505.5 Maximum Hot Water Temperatures

~~1. The maximum hot water temperature flowing from any kitchen sink faucet shall be 130 degrees Fahrenheit.~~

1. The maximum hot water temperature flowing from a lavatory faucet, Bidet, shower head, bathtub filler faucet, bathtub/shower combination, or whirlpool bathtub filler faucet shall be ~~120~~ 110 degrees Fahrenheit (~~48.8~~ 43 degreess Celcius).
2. ~~The maximum temperature flowing from a bidet faucet~~ Temperature limiting devices that are part of the fixture shall be ~~110 degrees Fahrenheit (43 degrees Celcius)~~ set to these limits except where temperature limiting devices do not exist, an approved temperature limiting valve conforming to ASSE 1070 shall be used to prevent excessive temperatures.
3. The burner control thermostat on the water heater shall not be used to control the hot water distributiuon temperature for conformance to the above hot water temperature limit requirements.

~~**505.6 Minimum Hot or Tempered Water Temperatures**~~

1. ~~The water temperature flowing from a lavatory shall be capable of reaching a minimum of at least 85 degrees Fahrenheit.~~
2. ~~The water temperature flowing from a kitchen sink shall be capable off reaching a minimum of at least 120 degrees F.~~
3. ~~The water temperature flowing from a shower, tub/shower, bathtub or whirlpool bathtub shall be capable of reaching a minimum of at least 110 degrees F.~~
4. ~~The water temperature flowing from a shower, tub/shower, bathtub or whirlpool bathtub shall be capable of reaching a minimum of at least 110 degrees F.~~

~~**505.7 Water Heater Replacement - Capacity** When a water heater is replaced, it shall be replaced with a water heater of the same delivery capacity in gallons per hour. When Calculating gallons per hour the temperature rise shall be based on the same temperature rise as the prior heater. If no temperature rise is known, the temperature rise shall be based on a 100 degree rise.~~

> ~~**Exception:** Where the water heater manufacturer's sizing calculations or other published water heater sizing calculations show the first hour delivery capacity of the selected water heater is adequate for the installation.~~

(Renumber section 505.8 to 505.6)

Commenter's Reason: There are many scald cases every year that are preventable. These modifications are intended to address these issues.

PM5-15

EB1-15

[A] 101.4.2, 301.1.1, 301.1.3, 301.1.2, 1301.2, 1401.3.2

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

[A] 101.4.2 Buildings previously occupied. The legal occupancy of any building existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the retroactive and maintenance provisions of the *International Fire Code*, or the *International Property Maintenance Code*, or as is deemed necessary by the *code official* for the general safety and welfare of the occupants and the public.

301.1.1 Prescriptive compliance method. *Repairs*, *alterations*, *additions* and *changes of occupancy* complying with Chapter 4 of this code ~~in buildings~~ , and complying with the retroactive and maintenance provisions of the *International Fire Code* shall be considered in compliance with the provisions of this code.

301.1.3 Performance compliance method. *Repairs*, *alterations*, *additions*, changes in occupancy and relocated buildings complying with Chapter 14 of this code , and complying with the retroactive and maintenance provisions of the *International Fire Code* shall be considered in compliance with the provisions of this code.

301.1.2 Work area compliance method. *Repairs*, *alterations, additions*, changes in occupancy and relocated buildings complying with the applicable requirements of Chapters 5 through 13 of this code, and complying with the retroactive and maintenance provisions of the *International Fire Code* shall be considered in compliance with the provisions of this code.

1301.2 Conformance. The building shall be safe for human occupancy as determined by the retroactive and maintenance provisions of the *International Fire Code* and the *International Property Maintenance Code*. Any *repair*, *alteration*, or *change of occupancy* undertaken within the moved structure shall comply with the requirements of this code applicable to the work being performed. Any field-fabricated elements shall comply with the requirements of the *International Building Code* or the *International Residential Code* as applicable.

1401.3.2 Compliance with other codes. Buildings that are evaluated in accordance with this section shall comply with the retroactive and maintenance provisions of the *International Fire Code* and *International Property Maintenance Code*.

Reason: This proposal is intended to clarify the intended scope of the reference to the IFC. The IFC has many roles that address new construction, retroactive construction requirements, maintenance and operational requirements. The sections addressed in this proposal are believed to focus primarily on provisions related to maintenance and retroactive provisions minimally. The IEBC itself will address what is intended to be addressed as far as further construction provisions. This is really meant as a clarification. A reference to the IFC in general should lead users to Chapter 1 which would, in Section 102 should explain how the reference is intended to be applied but this is sometimes misinterpreted.
Currently, the general reference to the IFC as in Section 1401.3.2 is sometimes interpreted as meaning the entire fire code thus negating the scoring methods benefits. Compliance in full with the new construction requirements of IFC Chapters 9 and 10 would require most aspects of fire protection and egress to be upgraded regardless of the score the current building would obtain. This was not the intent of the reference to the IFC.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as these revisions will simply clarify that the IEBC was only intended to reference the IFC for retroactive and maintenance provisions. Therefore the level of applicability of the IFC will not change.

EB1-15 : [A] 101.4.2-KULIK4744

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal was disapproved based upon concern that not all states reference the IFC. This additional language does not clarify to what level you must comply with the IFC and provides unnecessary language.

Assembly Motion: As Submitted
Online Vote Results: Successful
Support: 50.91% (84) Oppose: 49.09% (81)
Assembly Action : Approved as Submitted

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action

requests Approve as Submitted.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The

assembly action for Approve as Submitted was successful by a vote of 50.91% (84) to 49.09% (81) by eligible members online during the period of May 14 - May 28, 2015.

Public Comment 2:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

[A] 101.4.2 Buildings previously occupied. The legal occupancy of any building existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the ~~retroactive and maintenance~~ provisions of the *International Fire Code*applicable to existing buildings, or the *International Property Maintenance Code*, or as is deemed necessary by the *code official* for the general safety and welfare of the occupants and the public.

301.1.1 Prescriptive compliance method. *Repairs*, *alterations*, *additions* and *changes of occupancy* complying with Chapter 4 of this code, and complying with the ~~retroactive and maintenance~~ provisions of the *International Fire Code* applicable to existing buildings shall be considered in compliance with the provisions of this code.

301.1.2 Work area compliance method. *Repairs, alterations, additions*, changes in occupancy and relocated buildings complying with the applicable requirements of Chapters 5 through 13 of this code~~, and complying with the retroactive and maintenance provisions of the *International Fire Code*~~ shall be considered in compliance with the provisions of this code.

301.1.3 Performance compliance method. *Repairs*, *alterations*, *additions*, changes in occupancy and relocated buildings complying with Chapter 14 of this code, and complying with the ~~retroactive and maintenance~~ provisions of the *International Fire Code* applicable to existing buildings shall be considered in compliance with the provisions of this code.

1301.2 Conformance. The building shall be safe for human occupancy as determined by the ~~retroactive and maintenance~~ provisions of the *International Fire Code* applicable to existing buildings and the *International Property Maintenance Code*. Any *repair*, *alteration*, or *change of occupancy* undertaken within the moved structure shall comply with the requirements of this code applicable to the work being performed. Any field-fabricated elements shall comply with the requirements of the *International Building Code* or the *International Residential Code* as applicable.

1401.3.2 Compliance with other codes. Buildings that are evaluated in accordance with this section shall comply with the ~~retroactive and maintenance~~ provisions of the *International Fire Code* applicable to existing buildings and *International Property Maintenance Code*.

Commenter's Reason: This original proposal is really meant as a clarification. A reference to the IFC in general should lead users to Chapter 1 which would, in

Section 102 should explain how the reference is intended to be applied but this is sometimes misinterpreted. This proposal is important in that it carves out the applicable provisions that this reference intends.
Currently, the general reference to the IFC as in Section 1401.3.2 is sometimes interpreted as meaning the entire fire code thus negating the scoring methods benefits. Compliance in full with the new construction requirements of IFC Chapters 9 and 10 would require most aspects of fire protection and egress to be upgraded regardless of the score the current building would obtain. This was not the intent of the reference to the IFC.

The other aspect of the need for this reference is that often the retroactive requirements of the IFC are overlooked. Having a specific emphasis on the existing building provisions of the IFC will help clarify the need to comply with these minimum construction requirements in Chapter 11 and to a certain extent Chapter 8.

The committee was concerned with the terms used of "retroactive and maintenance provisions" as being misleading as to which requirements were intended. Instead the public comments make this a more universal reference to the provisions of the IFC that apply to existing buildings. Section 102 of the IFC provides specific guidance as to the applicability to existing buildings.

Another concern by the committee was that not all jurisdictions use Chapter 11 of the IFC. With a more general reference to "provisions applicable to existing buildings" applicability can be determined based upon their particular adopted regulations.

Section 301.1.2 was reverted back to the 2015 language which did not have a current reference to the IFC. This is related to the understanding of the original intent of the work area method which was intended to be all inclusive. In other words, when applying the work area method a reference to the IFC was specifically not included for this reason.

EB1-15

EB2-15

[A] 104.2.1, 302.3, 401.2.1, 401.3, [BS] 404.2.1, 407.1, 407.1.1, 408.2, [BS] A106.2, [BS] A107.1, [BS] A108.1, [BS] A113.7, [BS] A206.2, [BS] A505.1

Proposed Change as Submitted

Proponent : Maureen Traxler, City of Seattle, representing City of Seattle Dept of Planning & Development (maureen.traxler@seattle.gov)

2015 International Existing Building Code

Revise as follows:

[A] 104.2.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas. For applications for reconstruction, rehabilitation, repair, alteration, addition or other improvement of existing buildings or structures located in flood hazard areas, the building official shall determine where the proposed work constitutes substantial improvement or repair of substantial damage. Where the building official determines that the proposed work constitutes substantial improvement or repair of substantial damage, and where required by this code, the ~~building~~ code official shall require the building to meet the requirements of Section 1612 of the *International Building Code*.

302.3 Existing materials. Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the ~~building~~ code official to be unsafe.

401.2.1 Existing materials. Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the ~~building~~ code official to be unsafe per Section 115.

401.3 Dangerous conditions. The ~~building~~ code official shall have the authority to require the elimination of conditions deemed *dangerous*.

[BS] 404.2.1 Evaluation. The building shall be evaluated by a *registered design professional*, and the evaluation findings shall be submitted to the ~~*building official*~~code *official*. The evaluation shall establish whether the damaged building, if repaired to its predamage state, would comply with the provisions of the *International Building Code* for wind and earthquake loads.

Wind loads for this evaluation shall be those prescribed in Section 1609 of the *International Building Code*. Earthquake loads for this evaluation, if required, shall be permitted to be 75 percent of those prescribed in Section 1613 of the *International Building Code*. Alternatively, compliance with ASCE 41, using the performance objective in Table 301.1.4.2 for the applicable risk category, shall be deemed to meet the earthquake evaluation requirement.

407.1 Conformance. No change shall be made in the use or occupancy of any building unless such building is made to comply with the requirements

of the *International Building Code* for the use or occupancy. Changes in use or occupancy in a building or portion thereof shall be such that the existing building is no less complying with the provisions of this code than the existing building or structure was prior to the change. Subject to the approval of the ~~building~~ code official, the use or occupancy of *existing buildings* shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all of the requirements of this code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.

> **Exception:** The building need not be made to comply with the seismic requirements for a new structure unless required by Section 407.4.

407.1.1 Change in the character of use. A change in occupancy with no change of occupancy classification shall not be made to any structure that will subject the structure to any special provisions of the applicable *International Codes*, without approval of the ~~*building official*~~code *official*. Compliance shall be only as necessary to meet the specific provisions and is not intended to require the entire building be brought into compliance.

408.2 Life safety hazards. The provisions of this code shall apply to historic buildings judged by the ~~building~~ code official to constitute a distinct life safety hazard.

[BS] A106.2 Existing materials. Existing materials used as part of the required vertical load-carrying or lateral forceresisting system shall be in sound condition, or shall be repaired or removed and replaced with new materials. All other unreinforced masonry materials shall comply with the following requirements:

1. The lay-up of the masonry units shall comply with Section A106.3.2, and the quality of bond between the units has been verified to the satisfaction of the building official;
2. Concrete masonry units are verified to be load-bearing units complying with ASTM C 90 or such other standard as is acceptable to the ~~building~~ code official; and
3. The compressive strength of plain concrete walls shall be determined based on cores taken from each class of concrete wall. The location and number of tests shall be the same as those prescribed for tensile-splitting strength tests in Sections A106.3.3.3 and A106.3.3.4, or in Section A108.1.

The use of materials not specified herein or in Section A108.1 shall be based on substantiating research data or engineering judgment, with the approval of the ~~building~~ code official.

[BS] A107.1 Pointing. Preparation and mortar pointing shall be performed with special inspection.

> **Exception:** At the discretion of the ~~building~~ code official, incidental pointing may be performed without special inspection.

[BS] A108.1 Values.

1. Strength values for existing materials are given in Table A1-D and

for new materials in Table A1-E.

2. Capacity reduction factors need not be used.
3. The use of new materials not specified herein shall be based on substantiating research data or engineering judgment, with the approval of the ~~building~~ code official.

[BS] A113.7 Veneer.

1. Veneer shall be anchored with approved anchor ties conforming to the required design capacity specified in the building code and shall be placed at a maximum spacing of 24 inches (610 mm) with a maximum supported area of 4 square feet (0.372 m^2).

   Exception: Existing anchor ties for attaching brick veneer to brick backing may be acceptable, provided the ties are in good condition and conform to the following minimum size and material requirements.

   Existing veneer anchor ties may be considered adequate if they are of corrugated galvanized iron strips not less than 1 inch (25 mm) in width, 8 inches (203 mm) in length and $^1/_{16}$ inch (1.6 mm) in thickness, or the equivalent.
2. The location and condition of existing veneer anchor ties shall be verified as follows:
   - 2.1. An approved testing laboratory shall verify the location and spacing of the ties and shall submit a report to the ~~building~~ code official for approval as part of the structural analysis.
   - 2.2. The veneer in a selected area shall be removed to expose a representative sample of ties (not less than four) for inspection by the ~~building~~ code official.

[BS] A206.2 Special requirements for wall anchorage systems. The steel elements of the wall anchorage system shall be designed in accordance with the building code without the use of the 1.33 short duration allowable stress increase when using allowable stress design.

Wall anchors shall be provided to resist out-of-plane forces, independent of existing shear anchors.

Exception: Existing cast-in-place shear anchors are allowed to be used as wall anchors if the tie element can be readily attached to the anchors, and if the engineer or architect can establish tension values for the existing anchors through the use of approved as-built plans or testing and through analysis showing that the bolts are capable of resisting the total shear load (including dead load) while being acted upon by the maximum tension force due to an earthquake. Criteria for analysis and testing shall be determined by the ~~building~~ code official.

Expansion anchors are only allowed with special inspection and approved testing for seismic loading.

Attaching the edge of plywood sheathing to steel ledgers is not considered compliant with the positive anchoring requirements of this chapter. Attaching the edge of steel decks to steel ledgers is not considered as providing the positive anchorage of this chapter unless testing and/or analysis are performed to establish shear values for the attachment

perpendicular to the edge of the deck. Where steel decking is used as a wall anchor system, the existing connections shall be subject to field verification and the new connections shall be subject to special inspection.

[BS] A505.1 General. Structures conforming to the requirements of the ASCE 41 Chapter 4, Screening Phase, are permitted to be shown to be in conformance to this chapter by submission of a report to the ~~building~~ code official, as described in this section.

Reason: The IEBC defines the term "code official" but it then uses both "building official" and "code official." Both terms are used in other International codes, but none of the codes uses both. "Code official" is more appropriate for the IEBC because the IEBC addresses more than Building Code issues. It includes mechanical sections—the IMC uses the term "code official." It includes plumbing sections—the IPC uses the term "code official." The term "code official" is defined in Chapter 2, and is the more general term.
Note that Figure A3-1 and A3-2 also contain the term "building official" and should also be revised to "code official." The figures could not be added to the proposal.

Cost Impact: Will not increase the cost of construction
This is an editorial change that will not affect the cost of construction.

EB2-15 : 302.3-TRAXLER3299

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There was concern that a reference to other than the "building official" would cause confusion. A building official is the most appropriate enforcement entity for an existing building code.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Committee, National Council of Structural Engineers Associations (dbonowitz@att.net) requests Approve as Submitted.

Commenter's Reason: The committee's reason for disapproval -- that "building official" is a better and less confusing term than "code official" -- is simply false. In fact, code official is the more common term in the IEBC, and NOT to clean up the few remnant uses of building official is more confusing. Consider:
1. The IEBC and IBC use the term "code official" right in the first line of the Introduction to each code. This is hardly a non-standard term.

2. The IEBC defines only Code Official, with essentially the same definition as the IBC's Building Official.

3. The IEBC already uses "code official" throughout. EB 2 would merely clean up the relatively few remaining uses of "building official," especially in Chapter 4 where they are left over from borrowing text from IBC Chapter 34 that no longer exists there.

Public Comment 2:

Proponent : Kathleen Petrie, representing City of Seattle, Department of Planning and Development (kathleen.petrie@seattle.gov) requests Approve as Submitted.

Commenter's Reason: "Code Official", not "Building Official", is the defined term in the IEBC, IECC, and IMC. The term "Code Official" is used 174 times throughout the IEBC; "Building Official" is currently only used 22 times. Additional preference is demonstrated in Section 104 entitled "Duties and Powers of Code Official" where the first sentence states: "The *code official* is hereby authorized and directed to enforce the provisions of this code."

Contrary to the message at the Committee Action Hearings, "Building Official" actually causes more confusion because it is not the primary term in the IEBC, so this and future proposals should work to replace the few remaining "Building Official" terms to "Code Official".

EB2-15

EB5-15
301.1

Proposed Change as Submitted

Proponent : David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Subcommittee, National Council of Structural Engineers Associations (dbonowitz@att.net)

2015 International Existing Building Code

Revise as follows:

301.1 General. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with one of the methods listed in Sections 301.1.1 through 301.1.3 as selected by the applicant. Sections 301.1.1 through 301.1.3 shall not be applied in combination with each other. Where this code requires consideration of the seismic forceresisting system of an *existing building* subject to *repair*, *alteration*, *change of occupancy*, *addition* or relocation of *existing buildings,* the seismic evaluation and design shall be based on Section 301.1.4 regardless of which compliance method is used.

> **Exception:**Other than in flood hazard areas or regarding structural provisions, and Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code~~ unless the building is undergoing more than a limited structural *alteration* as defined in Section 907.4.4. New structural members added as part of the *alteration* shall comply with the *International BuildingCode*. *Alterations* of *existing buildings* in *flood hazardareas* shall comply with Section 701.3~~.

Reason: This proposal retains the exception that allows the code official to waive certain architectural and other requirements that the IEBC would normally trigger in alteration projects. It removes that exception, however, regarding structural provisions that would have been triggered by alterations.
The current exception already does not apply to alterations in flood hazard areas (which sometimes trigger structural improvements) or to substantial structural alterations. So the proposal does not change those cases at all.

The proposal eliminates the potential that the IEBC's basic structural requirements might be undermined by a code official's discretion, or, more likely, by a permit applicant who reads this exception as a way to demand a discretionary waiver. Since very few code officials would be comfortable waiving these structural safety provisions, the proposal actually helps them enforce the code as intended.

Further, the existing exception is unclear. It refers to "laws in existence at the time the building … was built." But if the intent is to waive requirements triggered by alterations, this language ignores, or forgets, the fact that older codes for a long time had alteration provisions that triggered structural upgrade -- often with requirements more onerous than those in the current IEBC. So does a permit applicant claiming compliance with the "laws in existence" a generation ago also intend to comply with those outdated triggers? Thie proposal removes that potential confusion.

Since the existing structural provisions for alterations are already measured, already allow reduced loads and alternative criteria in many cases, and already trigger

structural improvements only in rare and severe cases, the proposed change to this exception should have little impact except to affirm that structural safety is fundamental to the code's intent.

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Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction, but it could, hypothetically, limit the cases in which the code official could effectively reduce the cost of construction by waiving structural safety requirements. In practice, no increase in the cost of construction should be expected, however, since the proposal does not change any of the code's provisions, but only changes what was a discretionary waiver.

EB5-15 : 301.1 - BONOWITZ5196

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal was disapproved as it will create more confusion in the application of the exception. There were suggestions that a different format was needed.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Committee, National Council of Structural Engineers Associations (dbonowitz@att.net) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Existing Building Code

301.1 General. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with one of the methods listed in Sections 301.1.1 through 301.1.3 as selected by the applicant. Sections 301.1.1 through 301.1.3 shall not be applied in combination with each other. Where this code requires consideration of the seismic forceresisting system of an *existing building* subject to *repair*, *alteration*, *change of occupancy*, *addition* or relocation of *existing buildings,* the seismic evaluation and design shall be based on Section 301.1.4 regardless of which compliance method is used.

> **Exception:** Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code ~~unless the building is undergoing more than a limited structural *alteration* as defined in Section 907.4.4~~. New structural members added as part of the

alteration shall comply with the *International BuildingCode*. ~~*Alterations of existing buildings*~~ This exception shall not apply to alterations that constitute substantial improvement in *flood hazardareas* , which shall comply with Section 701.3. This exception shall not apply to the structural provisions of Chapter 4 or to the structural provisions of Sections 707, 807, and 907.

Commenter's Reason: This comment responds to the committee's suggestion, in its reason statement, that a clearer presentation of the idea is needed. In fact, the proposal we submitted to ICC had that clearer presentation, but it was modified by ICC and by CDPaccess, making the proposal, which is rather simple, much harder to follow. NONE OF THE COMMITTEE MEMBERS VOICED OPPOSITION TO THE MAIN SUBSTANTIVE IDEA OF THE PROPOSAL, in point 3 below.
This public comment restores the basic proposal in an easier-to-follow format -- though it must be said that CDPaccess STILL MAKES IT UNNECESSARILY CONFUSING!

Here is the idea (really, it's so simple):

1. There's a discretionary exception to 301.1 for certain alterations. Proposal EB5 and this comment keep that exception as is. No problem.

2. The exception already does not apply to substantial improvements in flood hazard areas. Proposal EB5 and this comment keep that limitation as is, but add a few words to clarify that the limit is only for substantial improvements. No substantive change, so no problem.

3. The exception already does not apply to any structural alteration that is "more than a limited structural alteration." Proposal EB5 and this comment merely extend that limit to other structural work. The reason, as given in the original reason statement for EB5, is that the IEBC structural provisions for alteration projects are already quite measured, already allow reduced loads and alternative criteria in most cases, and already trigger structural improvements only in rare and severe cases. Thus, EB5 should have little impact except to affirm that structural safety is fundamental to the IEBC's intent. (By making this change, EB5 also solves some implementation problems and confusion inherent in the existing exception; see the original EB5 reason statement for details.)

Again, at the hearings, the ONLY concerns expressed by the committee were about the confusing nature of the EXISTING exception, and whether proposal EB5 could be written in a clearer way.

EB5-15

EB8-15

301.1, [BS] 301.1.4, [BS] 301.1.4.1, [BS] Table 301.1.1.4.1, [BS] 301.1.4.2, [BS] Table 301.1.1.4.2, 303 (New)

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee(bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

SECTION 301 ADMINISTRATION

301.1 General. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with one of the methods listed in Sections 301.1.1 through 301.1.3 as selected by the applicant. Sections 301.1.1 through 301.1.3 shall not be applied in combination with each other. Where this code requires consideration of the seismic forceresisting system of an *existing building* subject to *repair*, *alteration*, *change of occupancy*, *addition* or relocation of *existing buildings,* the seismic evaluation and design shall be based on Section ~~301.1.4~~ 303.1 regardless of which compliance method is used.

> **Exception:** Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building is undergoing more than a limited structural *alteration* as defined in Section 907.4.4. New structural members added as part of the *alteration* shall comply with the *International BuildingCode*. *Alteration*s of *existing buildings* in *flood hazardareas* shall comply with Section 701.3.

301.1.1 Prescriptive compliance method. *Repairs*, *alterations*, *additions* and *changes of occupancy* complying with Chapter 4 of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.

301.1.2 Work area compliance method. *Repairs*, *alterations, additions, changes in occupancy and relocated buildings complying with the applicable requirements of Chapters 5 through 13 of this code shall be considered in compliance with the provisions of this code.*

301.1.3 Performance compliance method. *Repairs*, *alterations*, *additions*, changes in occupancy and relocated buildings complying with Chapter 14 of this code shall be considered in compliance with the provisions of this code.

Add new section as follows:

SECTION303 SEISMIC EVALUATION AND DESIGN PROCEDURES

Renumber subsequent sections:

[BS] ~~301.1.4~~ 303.1 ~~Seismic evaluation and design procedures~~ General. *(No change to text)*

[BS] ~~301.1.4.1~~ 303.1.1 Compliance with International Building Code-level seismic forces. *(No change to text)*

TABLE [BS] ~~3301.1.4.1~~303.1.1
PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH INTERNATIONAL BUILDING CODE-LEVEL SEISMIC FORCES
(No change to Table)

[BS] ~~301.1.4.2~~ 303.1.2 Compliance with reduced International Building Code-level seismic forces. *(No change to text)*

TABLE [BS] ~~301.1.4.2~~303.1.2
PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH REDUCED INTERNATIONAL BUILDING CODE-LEVEL SEISMIC FORCES
(No change to Table)

Reason: The code change proposal is to move the seismic evaluation and design procedures out of the same section and code hierarchy as the three compliance methods and places it in its own section. With the location of the seismic evaluation and design procedure reference in 301.1, it can potentially confuse the code user since two items need to happen in the current 301; choose a method and do a seismic evaluation.
Since the topic is separate and distinct, the proposal moves it to a separate section to ensure it is independent of the compliance method choice by the applicant.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
Cost impact: Code proposal is only to clarify the existing code requirements through a relocation (reorganization) of code sections, so there is no intended increase or decrease expected by approving this proposal.

EB8-15 : 301.1-KULIK4888

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: This proposal was approved as the format of the chapter will be clearer. Section 301 is intended to describe the three compliance methods. The seismic criteria are to be applied to all three methods where referenced and need to located in a standalone section.

Individual Consideration Agenda

Public Comment 1:

Proponent : David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Committee, National Council of Structural Engineers Associations (dbonowitz@att.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

301.1 General. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with one of the methods listed in Sections 301.1.1 through 301.1.3 as selected by the applicant. Sections 301.1.1 through 301.1.3 shall not be applied in combination with each other~~. Where this code requires consideration of the seismic forceresisting system of an *existing building* subject to *repair*, *alteration*, *change of occupancy*, *addition* or relocation of *existing buildings,* the seismic evaluation and design shall be based on Section 303.1 regardless of which compliance method is used~~.

> **Exception:** Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building is undergoing more than a limited structural *alteration* as defined in Section 907.4.4. New structural members added as part of the *alteration* shall comply with the *International BuildingCode*. *Alteration*s of *existing buildings* in *flood hazardareas* shall comply with Section 701.3.

303.1 General Where required, seismic evaluation or design shall be based on the procedures and criteria in this section, regardless of which compliance method is used.

~~**[BS] 303.1 General.** The seismic evaluation and design shall be based on the procedures specified in the *International Building Code* or ASCE 41. The procedures contained in Appendix A of this code shall be permitted to be used as specified in Section 303.1.2.~~

Commenter's Reason: The basic idea of EB 8 is good, and we support it: For clarity and usability, move the seismic criteria from section 301.1.4 into their own new section 303. However, in doing so, EB 8 missed two important cleanups to go with the move. This comment completes the intent of EB 8:
1. Move the last sentence of 301.1 into the new section 303 where it belongs, just before the seismic criteria sections themselves. With the move, the sentence can also be editorially simplified, clarified, and corrected as shown. This move is also important because it removes the confusion about whether the exception to 301.1 applies to the seismic criteria -- it obviously does not, as was pointed out at the hearings by several committee members, and as any quick read will show. If there is any doubt remaining about whether this sentence is meant to go with the seismic criteria and is not subject to the exception, we point out that the sentence was first added to the IEBC -- without any exception -- in 2009, when it and the seismic criteria

were still in section 101.5. Only in 2012 were both the sentence and the criteria moved into section 301.

2. By moving this sentence into new 303.1, replace the now redundant language of current 301.1.4 (new 303.1). This language is redundant because it merely names the documents that are going to be named and specified in greater detail in the sections to come (new 303.1.1 and 303.1.2).

EB8-15

EB9-15

301.1, 301.1.1, Chapter 4, 1401.2.5, [BS] B101.3, [BS] B101.4

Proposed Change as Submitted

Proponent : David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Subcommittee, National Council of Structural Engineers Associations (dbonowitz@att.net)

2015 International Existing Building Code

Delete without substitution:

~~**CHAPTER 4 PRESCRIPTIVE COMPLIANCE METHOD**~~

(Delete entire chapter)
(Renumber subsequent chapters)

Revise as follows:

301.1 General. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with one of the methods listed in Sections 301.1.1 ~~through 301.1.3~~ or 301.1.2 as selected by the applicant. Sections 301.1.1 ~~through 301.1.3~~ and 301.1.2 shall not be applied in combination with each other. Where this code requires consideration of the seismic forceresisting system of an *existing building* subject to *repair*, *alteration*, *change of occupancy*, *addition* or relocation of *existing buildings,* the seismic evaluation and design shall be based on Section 301.1.4 regardless of which compliance method is used.

> **Exception:** Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building is undergoing more than a limited structural *alteration* as defined in Section 907.4.4. New structural members added as part of the *alteration* shall comply with the *International BuildingCode*. *Alteration*s of *existing buildings* in *flood hazardareas* shall comply with Section 701.3.

Delete without substitution:

~~**301.1.1 Prescriptive compliance method.** *Repairs*, *alterations*, *additions* and *changes of occupancy* complying with Chapter 4 of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.~~

Revise as follows:

~~**301.1.2**~~**301.1.1 Work area compliance method.** *Repairs*, *alterations, additions, changes in occupancy and relocated buildings complying with the applicable requirements of Chapters 5 through 13 of this code shall be considered in compliance with the provisions of this code.*

~~**301.1.3**~~ **301.1.2 Performance compliance method.** *Repairs*, *alterations*, *additions*, changes in occupancy and relocated buildings complying with Chapter 14 of this code shall be considered in compliance with the provisions of this code.

(Renumber subsequent sections)

1401.2.5 Accessibility requirements. Accessibility shall be provided in accordance with Section ~~410 or 605~~ 705.

[BS] B101.3 Qualified historic buildings and facilities subject to Section 106 of the National Historic Preservation Act. Where an *alteration* or *change of occupancy* is undertaken to a qualified *historic building* or facility that is subject to Section 106 of the National Historic Preservation Act, the federal agency with jurisdiction over the undertaking shall follow the Section 106 process. Where the state historic preservation officer or Advisory Council on Historic Preservation determines that compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, the alternative requirements of Section ~~410.9~~ 1204.1 for that element are permitted.

[BS] B101.4 Qualified historic buildings and facilities not subject to Section 106 of the National Historic Preservation Act. Where an *alteration* or *change of occupancy* is undertaken to a qualified *historic building* or facility that is not subject to Section 106 of the National Historic Preservation Act, and the entity undertaking the alterations believes that compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, the entity shall consult with the state historic preservation officer. Where the state historic preservation officer determines that compliance with the accessibility requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historical significance of the building or facility, the alternative requirements of Section ~~410.9~~ 1204.1 for that element are permitted.

Reason: The intent of this proposal is to consider removing the Prescriptive compliance method from the IEBC, leaving the Work Area compliance method and the Performance compliance method in place.
Note: For purposes of brevity, the balance of Chapter 4 is not shown, but the intent is that Chapter 4 would be removed in its entirety, with corresponding changes to chapter and section numbers and related cross-referencing throughout the code.

The IEBC was created to implement the Work Area method. For continuity purposes, the two methods already in IBC Chapter 34 -- the Prescriptive and Performance methods -- were added to the IEBC upon its initial publication over a decade ago. The idea was that having three broad options would aid transition to the new code. Since then, the IEBC has enjoyed wide adoption, the Work Area method has become known and used, and revisions have been made to all three methods to reconcile many of the differences among them. Indeed, over the last three cycles, the structural provisions of the Prescriptive and Work Area methods have been made nearly identical.

Meanwhile, and especially because the IBC now refers to the IEBC in lieu of its own Chapter 34, many are questioning why the IEBC still needs multiple methods. It makes implementation confusing, and it puts a burden on jurisdiction adoption committees, code officials, design professionals, and permit applicants to weigh the advantages and disadvantages of each method. In some cases it leads to gaming. Some jurisdictions have simply not adopted one or another method, to facilitate consistent enforcement. Unfortunately, some proposals to solve the problem of

multiple methods would link or cross-reference them, just to minimize duplication of text. While well-intentioned, this will only make using the IEBC more confusing and difficult (and will violate the intent of Section 301.1 that the methods should remain distinct and not used in a mix-and-match fashion). The better approach is to reconcile differences between the methods, and then eliminate the older, less accommodating Prescriptive method.

Perhaps the time for that is now. Perhaps it is time, after four code cycles, to reconsider the initial intent of the IEBC: To regulate work on existing buildings by project type, with nuances and considerations that require more than a single code chapter.

If the code's users, writers, and stakeholders agree that the Prescriptive and Work Area methods are by now sufficiently similar, we can eliminate the older Prescriptive method with little or no impact, using the public comment period and the time between now and 2018 to iron out the necessary editorial, administrative and coordination changes. If not -- that is, if there is even a significant minority in rational opposition -- then we can approve the proposal at the hearings, use the public comment period to identify irreconcilable differences, disapprove or withdraw the proposal if necessary as a final action, and work on reconciliation for the 2021 IEBC. At the very least, however, this proposal represents an opportunity to hear from the IEBC committee and the code's users about whether and when the Prescriptive method ought to be retired.

Cost Impact: Will not increase the cost of construction
If the Prescriptive Method and the Work Area Method are similar enough to justify approval of this proposal, then removal of the Prescriptive method cannot result in a significant cost increase.

EB9-15 : 301.1-BONOWITZ5264

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The prescriptive method was felt to be a viable option for many projects and would reduce the flexibility of the document if deleted. There was concern with how the deletion of Chapter 4 would integrate with the other major format changes being proposed in this cycle.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Committee, National Council of Structural Engineers Associations (dbonowitz@att.net) requests Approve as Submitted.

Commenter's Reason: This Public Comment is intended to ensure that the idea of removing the Prescriptive method from the IEBC gets a full hearing from ICC members and users so as to better inform the ICC Board. Even if EB 9 is approved by members and desired by IEBC users, removal of Chapter 4 from the IEBC will surely require ICC Board approval -- just as ICC Board approval was needed in the last cycle when Chapter 34 was removed from the IBC. Thus, THERE IS NO DANGER

that in voting to approve EB 9 we will be prematurely pulling Chapter 4 from the IEBC. Rather, we will be telling the ICC Board that this is the direction to go in. If we can get there in this cycle, great. If not, let's put all of our fellow code wonks on notice to start working for that goal in 2021.
Please see the original full reason statement for EB 9, which explains the history of why the Prescriptive method was intended only as a transitional option, and why it is now time to embrace the Work Area method.

In addition, we respond to the IEBC committee's reasons for initial -- and NOT unanimous! -- disapproval.

The committee said that the Prescriptive method remains a viable option and provides flexibility. That might have been true in 2003, when few people had heard of the Work Area method, but that benefit is far smaller today. The IEBC is much more widely adopted and recognized today. Also, over the last several cycles, most differences between the two methods have been eliminated -- in many cases the methods now represent mere duplication. But worse than that, rather than provide "flexibility," the multiple methods create a burdensome game in which the permit applicant tries each method (and must pay design professionals to go through the exercise) to see which one is cheapest. It's a hassle for everyone. Some jurisdictions adopt only one method, either Prescriptive or Work Area, just to avoid this gaming, so there's no "flexibility" there. Those jurisdictions are telling us something about where the IEBC should be headed.

The committee also wondered how EB 9 would mesh with the other big re-organizing proposals, EB 10, 11, and 33. Good question, easy answer: It would make them unnecessary! The very reasons for those proposals are to eliminate duplication and (in the case of EB 11), to outright select the Work Area method over the Prescriptive method. It turns out that the easiest and most effective way to remove duplication from the IEBC and improve its usability is NOT to reorganize and rearrange the chapters (per EB 10, 11, and 33), but to just remove one of the multiple methods. EB 10, 11, and 33 are all half-measures. But whether you like them or not, it is clear that the committee and the members approve of their overall intent -- to remove duplication and improve usability. Those are precisely the intent and the effect of EB 9.

But there are other reasons to urge the ICC Board to commit to removing Chapter 4. Doing so, through EB 9 or other means, will also eliminate the confusion, the cross-referencing, the cycle by cycle changes to chapter and section numbers, the MISTAKES and OVERSIGHTS, and the general flips and twists made necessary by interim measures like EB 10, 11, and 33. It turns out that EB 10 and EB 11, despite their good intent, COMPLETELY MISSED the necessary coordination for historic buildings in Chapter 12. And it turns out that EB 33, though it claims to be entirely editorial, will actually result in unintended substantive changes to accessibility requirements. Yet all three were approved, because it's just really hard to simplify half of something and still have the other half work smoothly. Trying to do this piece by piece is bound to make mistakes and will ultimately make the code even harder to untangle.

By voting for EB 9, you an tell the ICC Board that it's time for the IEBC to live up to its mission. The Prescriptive method had a good run, but we're ready, finally, to move on to something better.

Public Comment 2:

Proponent : Steven McDaniel, representing New York State Building Officials Conference requests Approve as Submitted.

Commenter's Reason: Chapter 4 of the IEBC was moved from IBC Chapter 34 (the Prescriptive and Performance methods). The IBC only had Chapter 34, however when it was moved to the IEBC it became two separate compliance methods (Chapter 4

and Chapter 14 of IEBC). These two chapters used to be linked together for compliance when they were in the IBC. In the IEBC, that link is no longer there. Chapter 4 contains provisions for project type but then also has separate provisions for Fire Escapes and Glass Replacement and Replacement Windows mixed in in the middle of the section.

The provisions in 402 for additions are found in Chapter 11. The provisions for Alterations in Chapter 4 send you to the Building Code for compliance with no guidance of what needs to be complied with. There are no provisions for the different classifications of levels of alterations. The more you read and try to apply the provisions found in Chapter 4, the more problems you encounter.

Chapter 14 is a valuable compliance method, however Chapter 4 is a messy "Go to the Building Code and be no less conforming" chapter that needs to be removed because the connection to Chapter 14 is no longer there.

EB9-15

EB11-15

301.1, 301.2 (New), 301.1.2, 301.1.3, 301.3 (New), 401.1, 401.1.1, 409, Chapter 13, 1401.1

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Relocate Chapter 13 as follows:

~~13~~ 14 RELOCATED OR MOVED BUILDINGS
(Renumber all subsequent sections in this chapter)
(Renumber Chapter 14 Prescriptive Method to be Chapter 13)

SECTION 301 ADMINISTRATION

301.1 General. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with ~~one~~ 301.2 or 301.3 of ~~the methods listed in Sections 301.1.1 through 301.1.3 as selected by the applicant. Sections 301.1.1 through 301.1.3 shall not be applied in combination with each other~~ this section. Where this code requires consideration of the seismic ~~forceresisting~~ force resisting system of an *existing building* subject to *repair*, *alteration*, *change of occupancy*, *addition* or relocation of *existing buildings,* the seismic evaluation and design shall be based on Section ~~301.1.4~~ 301.2.4 regardless of which compliance method is used.

> **Exception:** Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building is undergoing more than a limited structural *alteration* as defined in Section 907.4.4. New structural members added as part of the *alteration* shall comply with the *International BuildingCode*. *Alteration*s of *existing buildings* in *flood hazardareas* shall comply with Section 701.3.

Add new text as follows:

301.2 Repairs, alterations, change of occupancy, and additions. The *repair, alteration, change of occupancy*, or *addition* of all *existing buildings* shall comply with one of the methods listed in Sections 301.1.1 through 301.1.3 as selected by the applicant. Sections 301.2.1 through 301.2.3 shall not be applied in combination with each other.

Revise as follows:

~~301.1.1~~ 301.2.1 Prescriptive compliance method. *Repairs*, *alterations*, *additions* and *changes of occupancy* complying with Chapter 4 of this code in buildings complying with the *International Fire Code* shall be

considered in compliance with the provisions of this code.

~~**301.1.2**~~ **301.2.2 Work area compliance method.** *Repairs*, *alterations, additions, and changes in occupancy ~~and relocated buildings~~ complying with the applicable requirements of Chapters 5 through ~~13~~ 12 of this code shall be considered in compliance with the provisions of this code.*

~~**301.1.3**~~ **301.2.3 Performance compliance method.** *Repairs*, *alterations*, *additions*, and changes in occupancy and ~~relocated buildings~~ complying with Chapter ~~14~~ 13 of this code shall be considered in compliance with the provisions of this code.

(Renumber subsequent sections)

Add new text as follows:

301.3 Relocated Buildings Relocated buildings shall comply with the requirements of Chapter 14.

Revise as follows:

401.1 Scope. The provisions of this chapter shall control the *alteration, repair, addition* and *change of occupancy* ~~or relocation~~ of *existing buildings* and structures, including *historic buildings* and structures as referenced in Section ~~301.1.1~~ 301.2.1.

> **Exception:** Existing bleachers, grandstands and folding and telescopic seating shall comply with ICC 300.

401.1.1 Compliance with other methods. *Alterations*, repairs, *additions* and *changes of occupancy* to ~~or relocation of,~~*existing buildings* and structures shall comply with the provisions of this chapter or with one of the methods provided in Section ~~301.1~~ 301.2.

~~**SECTION409 MOVED STRUCTURES**~~

~~**409.1 Conformance.** Structures moved into or within the jurisdiction shall comply with the provisions of this code for new structures.~~

(Renumber subsequent sections)

1401.1 Scope. The provisions of this chapter shall apply to the *alteration*, *repair*, *addition* and *change of occupancy* of existing structures, including historic ~~and moved~~ structures, as referenced in Section ~~301.1.3~~ 301.2.3. The provisions of this chapter are intended to maintain or increase the current degree of public safety, health and general welfare in *existing buildings* while permitting *repair*, *alteration*, *addition* and *change of occupancy* without requiring full compliance with Chapters 5 through ~~13~~ 12, except where compliance with other provisions of this code is specifically required in this chapter.

(Renumber subsequent sections)

Reason: The purpose of this code change is to adequately address relocated or moved buildings in the IEBC. Currently, the three compliance methods address relocated/moved buildings in their respective scopes. This change will relocate Chapter 13, Relocated or Moved Buildings, and make it generally applicable for all three methods.

The topic is currently handled the following way:

Prescriptive Method- "Meet this code for new structures" [IEBC doesn't deal with new structures]
Work Area Method- Specific chapter that is not based upon the hierarchy of the work area method
Performance Method- No requirements provided

In short, the only method that has technical requirements is Chapter 13. Since the IBC covers relocated buildings in its scope, the use of new structure requirements for relocated or moved buildings is always an option anyway.

The IEBC has three different methods to give choices in the design of existing buildings. The reason for the choice to the applicant is to give options since every existing building is different, using legacy materials and having legacy code requirements. This is not the case for relocated buildings as the intent is to reuse an existing building in a different location rather than complete other rehabilitation work.

The Chapter layout would look like this:

1-Admin
2-Definitions
3-Prescriptive

4-General Requirements for all compliance methods
5-Work Area Classification of Work
6-Repairs
7-Alt. 1
8- Alt. 2
9- Alt. 3
10- Change of Occupancy
11-Additions
12- Historic Buildings
13- Performance Method
14- Relocated Buildings
15- Safeguards
16- Referenced Standards

In the alternative, a code change could be to modify the prescriptive method to have an appropriate reference to the IBC as well as the performance method to have some direction on the issue within it.

As a correlation note; if this proposal is denied by either the BCAC or the code development committee, a proposal has to go forward to repair IEBC 409.1 to reference the IBC.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
Code proposal is only to clarify the existing code requirements through a relocation (reorganization) of code sections, so there is no intended increase or decrease expected by approving this proposal.

EB11-15 : 301.1-

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Relocated or moved buildings do not require various compliance methods. Currently, Chapter 4 does a poor job of addressing such buildings. Chapter 13 is more comprehensive and should apply in all cases. Chapter 13 Relocated or Moved Buildings will simply be renumbered as Chapter 14 and the performance method will become Chapter 13. It should be noted that Section 509 should be deleted.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Vickie Lovell, InterCode Incorporated, representing Modular Building Institute (vickie@intercodeinc.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

1202.3 Relocated buildings. ~~Foundations of relocated *historic buildings* and structures shall comply with the *International Building Code*.~~
Relocated *historic buildings* shall ~~otherwise be considered an *historic building* for the purposes~~ comply with Chapter 14 of this code. ~~Relocated *historic buildings* and structures shall be sited so that exterior wall and opening requirements comply with the *International Building Code* or with the compliance alternatives of this code.~~ _

Commenter's Reason: This change to 1202.3 was inadvertently omitted from the list of code sections identified in EB 11-15 that needed to be modified in the IEBC to address moved or relocated structures and buildings, including historic buildings. This public comment is a cleanup that correlates numerous code sections in the IEBC that deal with relocated existing buildings. The purpose of this public comment is to point the code user to the appropriate code section of the IEBC for historic buildings when they are moved from one jurisdiction to another. The current text, if left unchanged, incorrectly directs the code user to the IBC. The newly renumbered Chapter 14 in the IEBC handles these issues.

COST IMPACT: Will not increase the cost of construction.
There is no cost impact with this proposal since the IEBC already addresses moved and relocated structures.

Public Comment 2:

Proponent : Maureen Traxler, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

301.3 Relocated Buildings Relocated buildings shall comply with the requirements of Chapter ~~14~~ 5.

~~14~~ 5 RELOCATED OR MOVED BUILDINGS

Commenter's Reason: We are proposing that the new chapter on relocated buildings be Chapter 5 instead of Chapter 14. This location makes sense because the chapters that apply to all existing building projects would be located together--Chapter 3 "Provisions for All Compliance Methods", the new Chapter 4 "Repairs" created by EB10-15, followed by this Chapter 5 "Relocated or Moved Buildings." All three chapters will apply regardless of which compliance method is chosen for the project. The intent of this proposal is that all sections in the chapter would be renumbered, as would subsequent chapters.

EB11-15

EB13-15
301.1.5 (New)

Proposed Change as Submitted

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com); Ronald Nickson (rnickson@nmhc.org), representing National Multi-housing Council; Kevin Fry, BOMA International (Kfry@BOMA.org), representing BOMA International; Dan Buuck (dbuuck@nahb.org), representing NAHB

2015 International Existing Building Code

Add new text as follows:

301.1.5 Compliance with accessibility Accessible requirements for existing buildings shall comply with the 2009 edition of ICC A117.1.

Reason: Dramatic changes are being proposed in the next edition of the ICC A117.1 standard that will accommodate a higher number of individuals. For example, the turning radius is being changed from 60" diameter to a 67" diameter, and clear floor space from 30"x48" to 30"x52" and related access to features. While these changes are able to be incorporated into new construction relatively easily, existing buildings that have been designed to conform with earlier standards or were modified to meet those earlier standards are likely to find that full compliance will create problems. Even using provisions based on the technical infeasibility for compliance will still require compliance in some circumstances that aren't justifiable financially and physically.
The Department of Justice in development of the 2010 ADA Standard allows for "grandfathering" of elements in an existing building that have already been made to conform and are found to comply with the earlier ADA standard. The 2009 edition of A117.1 provides the most comprehensively structured provisions for compliance with the original ADA and HUD standard, which is why a specific reference to that edition of the Standard for determining whether areas outside the specific alterations or change of occupancy must be modified.

Cost Impact: Will not increase the cost of construction
This change will reduce the cost of construction where changes have already been made to features of a building to conform to older accessibility standards. Under the proposed changes to A117.1 significant cost would be required to conform to these requirements often in areas where upgrades have already been performed in areas such as toilet rooms to meet the barrier removal requirements of the ADA or because of alterations and change of occupancy under the I-Codes when that work had been done prior to the adoption of this new standard.

EB13-15 : 301.1.5 (New)-COLLINS4462

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: This proposal which specifies the 2009 edition of A117.1 was

felt necessary to avoid difficulties in achieving compliance for existing buildings. The newer edition of A117.1 which is currently being developed is likely to have much more rigid requirements that will cause costly compliance issues. There was concern that the adoption of a specific edition should be revisited in future editions as these concerns may lessen. Also, it was suggested that a more precise application of A117.1 could be provided to avoid application of overly restrictive requirements to certain features without losing the reference to the most recent standard once it becomes available.

Assembly Motion: Disapprove
Online Vote Results: Failed
Support: 40.46% (70) Oppose: 59.54% (103)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jonathan Siu, City of Seattle, Dept of Planning & Development, representing City of Seattle Department of Planning & Development (jon.siu@seattle.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

301.1.5 Compliance with accessibility ~~Accessible~~ Repairs, alterations, additions and changes of occupancy complying with the accessibility requirements ~~for existing buildings~~ in this code shall ~~comply~~ be constructed in accordance with the 2009 edition of the ICC A117.1 or the edition of the ICC A117.1 that was referenced when the building was originally constructed, whichever is later.

Commenter's Reason: While we agree it would be onerous in many cases to require older existing buildings to comply with the updated ICC A117.1 standard currently under development, the text as proposed opens a big loophole for buildings that would be required to comply with newer editions of ICC A117.1. We do not believe this was the intent of the proponent, so this proposed modification would close that loophole.

Recall that the definition of an existing building in the IEBC includes buildings "for which a legal building permit has been issued." This means that even before a spade of dirt is turned to start construction, the building is "existing." This then opens up a scenario where an applicant applies for and receives a building permit that would be required to comply with a new edition of ICC A117.1. The day after the permit is issued, the applicant submits a new permit application to alter the "existing building" to comply with the 2009 version of ICC A117.1. This subterfuge would be allowed under the current language, as approved by the Committee.

This proposed modification will limit the application of the 2009 ICC A117.1 only to those buildings that were not required to comply with a newer standard when they were constructed. Thus, those that were supposed to comply with a new standard will still be required to comply with it into the future. Those that were designed to comply with the 2009 version of the standard would be permitted to continue to use that standard as the basis for their designs and approvals into the future.

We are aware that ICC has a committee that is working to update ICC A117.1, and we

assume their intent is to have it adopted into the 2018 I-codes. However, this proposed modification does not tie the allowed use of 2009 ICC A117.1 to adoption of the 2018 IBC for the following reasons:

- The adoption of the ICC A117.1 version under development would be a proposal for next year's Group B code development cycle, and,
- Neither the completion of the latest version, nor its adoption into the 2018 IBC through the Group B cycle is a certainty at this point in time.

Public Comment 2:

Proponent : Marsha Mazz, representing U.S. Access Board (mazz@access-board.gov) requests Disapprove.

Commenter's Reason: This proposal assumes that the next edition of the ICC/ANSI A117.1 will include changes that, if implemented, would have significant impact on existing buildings subject to the code. The proponents cited increases in the size of turning space and clear floor space as the reason for this action. While is possible that these new requirements will have an impact on existing spaces, it is not reasonable to set aside in its entirety a new accessibilty standard that is even more harmonized with ADA in order to to address concerns regarding these few provisions. In our testimony against this proposal, we suggested that the proponents should act more strategically by including exceptions only for those provisions that cause them concern. Absent such limited exceptions, we believe that the existing provisions in the IEBC allowing for compliance to the "maximum extent technically feasible" where "technical infeasibility" can be demonstrated sufficiently addresses the concern that some existing buildings cannot accomodate the new requirements. In fact, some buildings cannot accommodate the olderrequirements and must depend on techiical infeasibiltyy.
The proponent's reason statement compared their proposed retention of a dated accessibility standard to the Department of Justice (DOJ) safe harbor for existing buildings in compliance with the 1991 ADA Standard. This comparison fails in one significant way. The DOJ safe harbor does not apply where a building or facility is altered or added to. The DOJ safe harbor applies only where state or local governments and public accommodations have an affirmative duty to remove barriers in existing buildings and facilities that predate the effective date of the ADA Standards. These requirements are known as program accessibility (28 CFR 35.149 and 35.150) and removal of barriers (28 CFR 36.304). There is no corollary to program accessibility or barrier removal in the IBC or the IEBC because, unlike the building code, the ADA often requires the accessibility of a building to be upgraded regardless of whether an alteration or addition is undertaken. Under the ADA, alterations and additions must comply with the accessibility standards in effect at the time of construction unless compliance is technically infeasible (28 CFR 35.151 and 28 CFR 36.406).

EB13-15

EB20-15

402.1.1 (New), 410.6, 705.1, 1105.2 (New)

Proposed Change as Submitted

Proponent : Gene Boecker (geneb@codeconsultants.com)

2015 International Existing Building Code

Add new text as follows:

402.1.1 Accessible Means of Egress Additions shall provide accessible means of egress in accordance with Section 1009 of the *International BuildingCode*. Where the accessible means of egress from the addition leads through the existing building, the associated accessible means of egress path in the existing building shall be altered to be in accordance with Section 1009 of the *International Building Code*. Means of egress in the addition and existing building that are not accessible shall be provided with directional signage in accordance with Section 1009 of the *International Building Code* at the non-accessible portion of the means of egress.

Revise as follows:

410.6 Alterations. A *facility* that is altered shall comply with the applicable provisions in Chapter 11 of the *International Building Code*, unless *technically infeasible*. Where compliance with this section is *technically infeasible*, the *alteration* shall provide access to the maximum extent technically feasible.

Exceptions:

1. The altered element or space is not required to be on an accessible route, unless required by Section 410.7.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing facilities except as required by Section 402.1.1.
3. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.
4. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in *existing buildings* and facilities undergoing a *change of occupancy* in conjunction with *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.

705.1 General. A *facility* that is altered shall comply with the applicable provisions in Sections 705.1.1 through 705.1.14, and Chapter 11 of the *International Building Code* unless it is *technically infeasibl*e. Where compliance with this section is *technically infeasible*, the alteration shall provide access to the maximum extent that is technically feasible.

A *facility* that is constructed or altered to be accessible shall be maintained accessible during occupancy.

Exceptions:

1. The altered element or space is not required to be on an

accessible route unless required by Section 705.2.

2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing *facilities* except as required by Section 1101.1.1.
3. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing *facilities* undergoing less than a Level 3 *alteration*.
4. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall meet the provisions for Type B dwelling units.

Add new text as follows:

1105.2 Accessible means of egress Additions shall provide accessible means of egress in accordance with Section 1009 of the International Building Code. Where the accessible means of egress from the addition leads through the existing building, the associated accessible means of egress path in the existing building shall be altered to be in accordance with Section 1009 of the International Building Code. Means of egress in the addition and existing building that are not accessible shall be provided with directional signage in accordance with Section 1009 of the International Building Code at the non-accessible portion of the means of egress.

Reason: The proposal clarifies the application of the requirement for accessible means of egress (AMOE) in additions. The concept is the same for both the Prescriptive Compliance Method and Work Area Compliance Method. No proposal is made for Chapter 14 because Section 1401.2.5 already refers back to Sections 410 and 705 for accessibility complaince when using the Performance Compliance Method.

402.1.1 and 1101.1.1 - Because Section 410.6 of the IEBC (and Section 1009.1 of the IBC) contains an exception that states that the AMOE is not requried in existing buidlings, it creates confusion regarding what needs to be done when the AMOE from the addition leads through the existing buidling; whether it must continue through the existing buidling and require modification to the existing buidling as is implied in Section 402.1 or whether it can stop at the existing building due the explicit language in exception 2 of Section 410.6.

The proposed langage makes it clear that if the path of egress within the existing building cannot be made to comply with the requirements for an accessible means of egress, then the addition will need to provide all the AMOE requirements for the addition. This is the only option.

Finally, signage is required at the means of egress for both the addition and the existing buidling where those egress elements do not comply with the AMOE provisions of the IBC. If the means of egress in either the addition or existing building cannot meet the requirements as an AMOE then the directinoal signage must be provided so that the occupants can find the AMOE.

410.6 and 705.1 - It is clear that the blanket exception that the existing buidling is not required to have any acessible means of egress is not completely true. The requriements for the addition may force that upon the existing buidling. The text of these two sections should recognize and reflect that.

Cost Impact: Will not increase the cost of construction
The text is a clarification of the current interpretation.

EB20-15 : 402.1.1 (New)-BOECKER5786

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There was concern that this proposal added unnecessary wording to an issue that is technically already addressed. Also, the cost implication of this new section is unclear. The 20% cost limit provided for the accessible route requirements does not appear to be applicable.

Assembly Motion: As Submitted
Online Vote Results: Failed
Support: 37.87% (64) Oppose: 62.13% (105)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

402.1.1 Accessible Means of Egress Additions shall provide accessible means of egress in accordance with Section 1009 of the *International BuildingCode*. Where the accessible means of egress from the addition leads through the existing building, the associated accessible means of egress path in the existing building shall be altered to be in accordance with Section 1009 of the *International Building Code*. Means of egress in the addition and existing building that are not accessible shall be provided with directional signage in accordance with Section 1009 of the *International Building Code* at the non-accessible portion of the means of egress. Alterations to provide an accessible means of egress in the existing building shall provide access to the maximum extent technically feasible.

> **Exception:** The cost of providing the accessible means of egress through the existing building shall not be required to exceed five percent (5%) of the costs of the addition.

Commenter's Reason: By the committee's own discussion, it is clear that this issue needs to be further addressed. Some felt that it was already implied by the current text that to provide an accessible means of egress from the addition, the existing building needed to be modified as necessary. Others felt that the cost would be too great if the proposal went through as is because they would not infer that the existing building needed any work as a result of an addition. The additional language provides a cut-off on the cost to address the accessible means of egress in the existing building. For very small projects, the cost may include only the replacement of a threshold. This addresses the cost concern expressed. Without some language on this issue it will remain unclear and be enforced differently throughout the country. If we cannot address this comprehensively, at least let us take a start at clarifying the need to do something.

The other sections of the original proposal were not addressed in this public comment because Code Change EB33 reshuffles the sections of the IEBC. If

this public comment is approved it will need to be inserted and referenced properly based on the action on EB 33.

EB20-15

EB21-15

402.6 (New), 403.11 (New), 804.4.4 (New), 1105 (New), 1105.1 (New)

Proposed Change as Submitted

Proponent : Adolf Zubia, representing IAFC Fire & Life Safety Section

2015 International Existing Building Code

Add new text as follows:

402.6 Carbon monoxide alarms in existing portions of a building. Where an addition is made to a building or structure of a Group I-1, I-2, I-4 or R occupancy, the existing building shall be provided with carbon monoxide alarms in accordance with Section 1103.9 of the *International Fire Code* or Section R315of the *International Residential Code,* as applicable.

403.11 Carbon monoxide alarms. Carbon monoxide alarms shall be provided to protect sleeping units and dwelling units in Group I-1, I-2, I-4 and R occupancies in accordance with Section 1103.9 of the *International Fire Code*.

804.4.4 Carbon monoxide alarms. Sleeping units and dwelling units in any work area in Group I-1, I-2, I-4 and R occupancies shall be equipped with carbon monoxide alarms in accordance with Section 1103.9 of the International Fire Code.

SECTION 1105 CARBON MONOXIDE ALARMS IN GROUPS I-1, I-2, I-4 AND R

1105.1 Carbon monoxide alarms in existing portions of a building Where an addition is made to a building or structure of a Group I-1, I-2, I-4 or R occupancy, the existing building shall be equipped with carbon monoxide alarms in accordance with Section 1103.9 of the *International Fire Code* or Section R315 of the *International Residential Code,* as applicable.

Reason: This proposal is submitted by the Fire and Life Safety Section of the International Association of Fire Chiefs.
IFC Section 1103.8 contains requirements for installing smoke alarms in existing occupancies. Those requirements are reflected in the IEBC Sections 402.5. 403.10, 804.4.3 and 1104.1. IFC Section 1103.9 contains requirements for installing carbon monoxide alarms in existing occupancies; however, those requirements are currently not reflected in the IEBC.

This proposal corrects this oversight with the new proposed code sections.

This proposal will provide consistency between the IFC, IRC and the IEBC with regard to the installation and requirements of carbon monoxide alarms.

Cost Impact: Will not increase the cost of construction
The cost of construction will not increase since the existing buildings should already be in compliance with the requirements in IFC Section 1103.9. This proposal simply provides correlation between the I-Codes.

EB21-15 : 402.6 (New)-ZUBIA4683

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal was disapproved as it was not felt necessary to add these requirements to the IEBC already addressed by the IFC. In addition, there was concern that the cost impact was not addressed in enough detail and education is a better way to encourage the use of such detection.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

402.6 Carbon monoxide alarms in existing portions of a building. Where an addition is made to a building or structure of a Group I-1, I-2, I-4 or R occupancy, the existing building shall be provided with carbon monoxide alarms in accordance with Section 1103.9 of the *International Fire Code* or Section R315of the *International Residential Code,* as applicable.

Exceptions:

1. Work involving the exterior surfaces of buildings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of porches or decks, is exempt from the requirements of this section.
2. Installation, alteration or repairs of plumbing or mechanical systems, other than fuel-burning appliances, are exempt from the requirements of this section.

403.11 Carbon monoxide alarms. Carbon monoxide alarms shall be provided to protect sleeping units and dwelling units in Group I-1, I-2, I-4 and R occupancies in accordance with Section 1103.9 of the *International Fire Code*.

Exceptions:

1. Work involving the exterior surfaces of buildings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of porches or decks, is exempt from the requirements of this section.
2. Installation, alteration or repairs of plumbing or mechanical systems, other than fuel-burning appliances, are exempt from the requirements of this section.

SECTION 805 CARBON MONOXIDE DETECTION

~~804.4.4~~ 805.1 Carbon monoxide alarms. ~~Sleeping units and dwelling units in any~~ Any work area in Group I-1, I-2, I-4 and R occupancies shall be equipped with carbon monoxide alarms in accordance with Section 1103.9 of the International Fire Code.

Exceptions:

1. Work involving the exterior surfaces of buildings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of porches or decks, is exempt from the requirements of this section.
2. Installation, alteration or repairs of plumbing or mechanical systems, other than fuel-burning appliances, are exempt from the requirements of this section.

Commenter's Reason: The proposal was disapproved as it was not felt necessary to add these requirements to the IEBC already addressed by the IFC. Response: The CO alarm requirements replicate smoke alarm requirements that were judged to be necessary.

This Public Comment (PC) will provide consistency between the IFC, IRC and the IEBC with regard to the installation requirements of carbon monoxide detection in existing buildings. Section 1103.9 of the IFC and Section R315 of the IRC contain requirements for installation of CO detection in existing occupancies. However there are no such requirements in the IEBC.

The ICC membership has already determined that CO poisoning as a distinct hazard and has placed specific provisions in the IFC and IRC for CO detection in existing occupancies. Since the determination of a hazard is already identified in the aforementioned Codes similar requirements need to be added to the IEBC.

Also, in the absence of a model building code for the installation of CO detection in existing occupancies many jurisdictions are passing laws for CO detection in existing buildings with varying installation requirements.

EB21-15

EB23-15

403.2 (New), 704.1, 704.2 (New)

Proposed Change as Submitted

Proponent : Adolf Zubia, representing IAFC Fire & Life Safety Section

2015 International Existing Building Code

Add new text as follows:

403.2 Locking arrangements in Group E occupancies. Where approved by the code official, egress doors from classrooms, offices and other occupied rooms in Group E occupancies shall be allowed to be provided with locking arrangements designed to keep intruders from entering the room that require a key, special knowledge or effort when all of the following conditions are met:

1. The door shall be capable of being unlocked from outside the room with a key or other approved means.
2. Modifications shall not be made to existing listed panic hardware, fire door hardware or door closers.
3. Modifications to fire door assemblies shall be in accordance with NFPA 80.
4. The unlatching of the door or leaf shall be allowed to require two operations.

Revise as follows:

704.1 General. *Alterations* shall be done in a manner that maintains the level of protection provided for the means of egress, except as allowed in Section 704.2.

Add new text as follows:

704.2 Locking arrangements in Group E occupancies. Where approved by the code official, egress doors from classrooms, offices and other occupied rooms in Group E occupancies shall be allowed to be provided with locking arrangements designed to keep intruders from entering the room that require a key, special knowledge or effort when all of the following conditions are met:

1. The door shall be capable of being unlocked from outside the room with a key or other approved means.
2. Modifications shall not be made to existing listed panic hardware, fire door hardware or door closers.
3. Modifications to fire door assemblies shall be in accordance with NFPA 80.
4. The unlatching of the door or leaf shall be allowed to require two operations.

Reason: This proposal is submitted by Fire and Life Safety Section of the International Association of Fire Chiefs.
Unfortunately active shooter incidents in schools are a threat in modern society that have resulted in the need to quickly secure classrooms and other occupied areas to

keep unwanted intruders from entering.

Many unlisted devices are being used to secure the doors from being opened. Many of these devices have not been evaluated to insure they operate properly and do not impair door operation. These devices are being deployed in periodic lockdown drills, and present the potential to for students or unauthorized personnel to secure the doors so the rooms cannot be entered.

This proposal allows key actuated deadbolts or other locks to be provided on classroom doors, where the teacher can choose to lock the door and provide shelter-in-place in the classroom. The proposed change also requires the door to be able to be unlocked from the opposite side in cases where the school administrator or responders wish to enter the room without having to make a forcible entry.

Door hardware is currently available that allows classroom to be provided with lockdown capabilities that comply with applicable IBC Chapter 10 requirements. However the costs of retrofitting doors with that hardware far exceed the cost of retrofitting with a simple deadbolt lock. This is a significant issue for school systems who are continually facing budget restrictions.

This code change limits this optional locking method only when the building is undergoing alternations. This allowance is intentionally not provided for buildings undergoing additions or a change of occupancy.

It is not necessary to add new language to the Chapter 9 alteration provisions since Section 905.1 references Section 805 means of egress requirements.

Cost Impact: Will not increase the cost of construction
This proposal allows an option that may result in lower costs than retrofitting egress doors with locking hardware that complies with IBC Chapter 10 requirements.

EB23-15 : 704.1-ZUBIA4731

Public Hearing Results

Committee Action: Approved as Modified

Modification:

403.2 Locking arrangements in Group E occupancies. Where approved by the code official, egress doors from classrooms, offices and other occupied rooms in Group E occupancies shall be allowed to be provided with locking arrangements designed to keep intruders from entering the room ~~that require a key, special knowledge or effort~~ when all of the following conditions are met:

1. The door shall be capable of being unlocked from outside the room with a key or other approved means.
2. Modifications shall not be made to existing listed panic hardware, fire door hardware or door closers.
3. Modifications to fire door assemblies shall be in accordance with NFPA 80.
4. ~~The unlatching of the door or leaf shall be allowed to require two operations.~~

704.2 Locking arrangements in Group E occupancies. Where approved by the code official, egress doors from classrooms, offices and other occupied rooms in Group E occupancies shall be allowed to be provided with locking arrangements designed to keep intruders from entering the room ~~that require a key, special knowledge or effort~~ when all of the following conditions are met:

1. The door shall be capable of being unlocked from outside the room with a key or other approved means.
2. Modifications shall not be made to existing listed panic hardware, fire door hardware or door closers.
3. Modifications to fire door assemblies shall be in accordance with NFPA 80. .
4. ~~The unlatching of the door or leaf shall be allowed to require two operations.~~

Committee Reason: The committee preferred this proposal over E57-15 Part II with the inclusion of the modification. Note that E57-15 Part II was approved. This proposal provides special locking arrangements if they are necessary versus mandating the use of such arrangements. The modification deletes the language from each proposed section that states "that require a key, special knowledge and effort" as the verbiage would limit the provisions only to those types of locks. Item 4 was deleted from each section as it conflicts with accessibility requirements.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org); Adolf Zubia, representing International Association of Fire Chiefs,Fire & Life Safety Section , representing International Assoc of Fire Chiefs, Fire & Life Safety Section (azubiamia@yahoo.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

403.2 Locking arrangements in ~~Group E~~ <u>educational</u> occupancies. ~~Where approved by the code official~~ <u>In Group E and Group B educational occupancies</u>, egress doors from classrooms, offices and other occupied rooms ~~in Group E occupancies~~ shall be ~~allowed~~ <u>permitted</u> to be provided with locking arrangements designed to keep intruders from entering the room ~~when~~ <u>where</u> all of the following conditions are met:

1. The door shall be capable of being unlocked from outside the room with a key or other approved means<u>.</u>

2. The door shall be openable from within the room in accordance with Section 1010.1.9 of the International Building Code.
3. Modifications shall not be made to existing listed panic hardware, fire door hardware or door closers.
4. Modifications to fire door assemblies shall be in accordance with NFPA 80.

704.2 Locking arrangements in ~~Group E~~ educational occupancies. ~~Where approved by the code official, egress~~ Egress doors from classrooms, offices and other occupied rooms in Group E and Group B educational occupancies shall be allowed to be provided with locking arrangements designed to keep intruders from entering the room when all of the following conditions are met:

1. The door shall be capable of being unlocked from outside the room with a key or other approved means.
2. The door shall be openable from within the room in accordance with Section 1010.1.9 of the *International Building Code.*
3. Modifications shall not be made to existing listed panic hardware, fire door hardware or door closers.
4. Modifications to fire door assemblies shall be in accordance with NFPA 80. .

Commenter's Reason: At the Memphis hearings the committee voted unanimously to approve this proposal, with a floor modification. This public comment makes a few additional modifications to the proposal as follows:
1. Testimony was provided at the CAH suggesting these requirements be expanded to cover college classrooms, offices, and other occupied rooms (such as teacher lounges, central office areas, and similar rooms where locking out potential intruders is judged appropriate). Revisions to expand the section to cover Group B educational occupancies addresses this concern.
2. The original proposal allowed unlatching of the door from inside the room to require two operations, where approved by the code official. The provision allowing two operations to unlatch the door was removed with a floor amendment at the hearings. With that removed there is no need to retain "Where required by the code official" in this section.
3. New item 2 clarifies that the door must be openable from within the room in accordance with 1010.19 of the IBC. This will ensure that (1) egress doors are readily openable from the inside without use of a tool or special knowledge, (2) unlatching of the door will not require more than one operation, (3) door handles will meet accessibility requirements, and (4) hardware height is appropriate.

Public Comment 2:

Proponent : Region VII, representing ICC Region VII (admin@iccregionvii.org) requests Disapprove.

Commenter's Reason: Current modified language adds nothing new to the existing requirements additionally this may not allow the AHJ to have oversight in regards to the locking system of egress doors.

EB23-15

EB28-15

405.5

Proposed Change as Submitted

Proponent : Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org)

2015 International Existing Building Code

Revise as follows:

405.5 Opening protectives. Doors and windows ~~along the~~ within 10 feet of fire escape stairways shall be protected with $^{3}/_{4}$ -hour opening protectives.

Exception: Opening protection shall not be required in buildings equipped throughout with an automatic sprinkler system.

Reason: Section 805.3.1.2.1 permits this exception for Level 2 Alterations. This proposal would provide the same exception for fire doors and windows along the fire escape when using the prescriptive compliance method.

Cost Impact: Will not increase the cost of construction
When fire sprinkler systems are installed there would be no need to install new opening protectives.

EB28-15 : 405.5-HUGO4696

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: This proposal was approved for consistency with the current provisions in Section 805.3.1.2.1 Item 4.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Tom Zaremba, Roetzel & Andress, representing Alliance of Primary Fire Rated Manufacturers (tzaremba@ralaw.com) requests Disapprove.

Commenter's Reason: EB28-15 should be disapproved. The Committee's and the Proponent's only support for adopting EB28-15 is "consistency" with an exception found in IEBC Section 805.3.1.2.1. However, that "consistency" can only be achieved by creating an inconsistency with IFC Section 1103.1 and by giving EC28-15 a "free pass" to circumvent changes made to the 2015 IEBC and IFC that are now being carried forward into Ch. 4 of the IEBC by EB16-15. These IEBC and IFC changes specify exactly ***how*** changes to fire protection features in existing buildings ***may*** be allowed if automatic sprinklers are added.

The analysis begins with Section 1103.1 of the IFC. It provides: "The provisions of this chapter shall not be construed to allow the elimination of *fire protection systems* or a reduction in the level of fire safety provided in buildings constructed in accordance with previously adopted codes." This is significant to EB28-15 since IEBC Chapter 4 compliance depends on compliance with the IFC. IEBC Section 301.1.1 provides that: "*Repairs*, *alterations*, *additions* and *changes of occupancy* complying with Chapter 4 of this code ***in buildings complying with the International Fire Code*** shall be considered in compliance with the provisions of this code." (Emphasis added.)

In 2015, the IEBC and IFC were both changed to specify exactly what is required to change fire protection features in an existing building when automatic sprinklers are added throughout.

Section 803.6 was added to the IEBC in 2015 and provides:

> **Fire-resistance ratings.** Where approved by the code official, buildings where an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the *International Building Code* has been added, and the building is now sprinklered throughout, the required fire-resistance rating ratings of building elements and materials shall be permitted to meet the requirements of the current building code.
>
> Plans, investigation and evaluation reports, and other data ***shall be submitted*** indicating which building elements and materials the applicant is requesting the code official to review and approve for determination of applying the current building code fire-resistance ratings. Any special construction features, including fire-resistance-rated assemblies and smoke-resistive assemblies, conditions of occupancy, means-of-egress conditions, fire code deficiencies, approved modifications or approved alternative materials, design or methods of construction, and equipment applying to the building that impact required fire-resistance ratings shall be identified in the evaluation reports. (Emphasis added).

A corresponding change was made to the IFC in 2015, allowing changes made pursuant to IEBC Section 803.6 as an exception to IFC Section 1103.1. However, no change to coordinate EB28-15 with IFC Section 1103.1 has been proposed. As indicated earlier, use of IEBC Chapter 4 depends on compliance with the IFC.

Earlier this year, EB16-15 was unanimously approved by the Technical Committee. It would add language identical to IEBC 803.6 to IEBC Chapter 4. As set out in the statement supporting EB16-15:

> The suggested language … requires … any special construction features, conditions of occupancy, approved modifications or approved alternative materials, design and methods of construction, and equipment applying to the building that impact required fire-resistance ratings shall be identified in the evaluation reports submitted. This is to ensure [that] special conditions are identified that may [result in] a reduction in fire-resistance ratings.

If approved, EB28-15 will put the IEBC in conflict with IFC Section 1103.1 since there is no exception for EB28-15 in IFC Section 1103.1. Second, if adopted, EB28-15 will give a "free pass" to circumvent the analysis, review and approval requirements of IEBC Section 803.6, soon to be a part of the prescriptive provisions of Chapter 4 of the IEBC by reason of EB16-15.

We urge you to vote against the standing motion to approve EB28-15 and to vote in favor of a motion to disapprove EB28-15. If adopted, EB28-15 would automatically reduce the fire protection features of existing buildings without benefit of the analysis already found in IEBC Section 803.6 and proposed for Chapter 4 of the IEBC by EB16-15. It would also create an unnecessary conflict with the IFC.

EB33-15

410, 705, 801.1, 806, 901.2, 906, 1006, 1012.1.4, 1012.8, 1105, 1204, 1401.2.5, B101.3, B101.4, B102.2.3

Proposed Change as Submitted

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com); Maureen Traxler, City of Seattle (maureen.traxler@seattle.gov) representing City of Seattle Dept of Planning and Development; Steven Winkel (swinkel@preview-group.com) representing the Preview Group

2015 International Existing Building Code

Revise as follows:

~~**410.1**~~ **303.1 Scope.** The provisions of Sections ~~410.1~~ 303.1 through ~~410.9~~ 303.9 apply to maintenance, *change of occupancy*, *additions* and *alterations* to *existing buildings*, including those identified as *historic buildings*.

~~**410.2**~~ **303.2 Maintenance of facilities.** *No change to text.*

~~**410.3**~~ **303.3 Extent of application.** *No change to text.*

~~**410.4**~~ **303.4 Change of occupancy.** *No change to text.*

~~**410.4.1**~~ **303.4.1 Partial change in occupancy.** Where a portion of the building is changed to a new occupancy classification, any *alterations* shall comply with Sections ~~410.6~~ 303.6, ~~410.7~~ 303.7 and ~~410.8~~ 303.8.

~~**410.4.2**~~ **303.4.2 Complete change of occupancy.** Where an entire building undergoes a *change of occupancy*, it shall comply with Section ~~410.4.1~~ 303.4.1 and shall have all of the following accessible features:

1. At least one accessible building entrance.
2. At least one accessible route from an accessible building entrance to *primary function* areas.
3. Signage complying with Section 1111 of the *International Building Code*.
4. Accessible parking, where parking is being provided.
5. At least one accessible passenger loading zone, when loading zones are provided.
6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.

Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible.

Exception: The accessible features listed in Items 1 through 6 are not required for an accessible route to Type B units.

~~**410.5**~~ **303.5 Additions.** Provisions for new construction shall apply to *additions*. An *addition* that affects the accessibility to, or contains an area of, a *primary function* shall comply with the requirements in Section ~~410.7~~ 303.7.

~~**410.6**~~ **303.6 Alterations.** A *facility* that is altered shall comply with the applicable provisions in Chapter 11 of the *International Building Code*, unless *technically infeasible*. Where compliance with this section is *technically infeasible*, the *alteration* shall provide access to the maximum extent technically feasible.

Exceptions:

1. The altered element or space is not required to be on an accessible route, unless required by Section ~~410.7~~ 303.7.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing facilities.
3. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.
4. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in *existing buildings* and facilities undergoing a *change of occupancy* in conjunction with *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.

~~**410.7**~~ **303.7 Alterations affecting an area containing a primary function.** *No change to text.*

~~**410.8**~~ **303.8 Scoping for alterations.** The provisions of Sections ~~410.8.1~~ 303.8.1 through ~~410.8.14~~ 303.8.15 shall apply to *alterations* to *existing buildings* and *facilities*.

~~**410.8.1**~~ **303.8.1 Entrances.** *No change to text.*

~~**410.8.2**~~ **303.8.2 Elevators.** *No change to text.*

~~**410.8.3**~~ **303.8.3 Platform lifts.** *No change to text.*

~~**410.8.4**~~ **303.8.4 Stairways and escalators in existing buildings.** *No change to text.*

~~**410.8.5**~~ **303.8.5 Ramps.** Where slopes steeper than allowed by Section 1012.2 of the *International Building Code* are necessitated by space limitations, the slope of ramps in or providing access to existing facilities shall comply with Table ~~410.8.5~~ 303.8.5.

TABLE 303.8.5
RAMPS

SLOPE	MAXIMUM RISE

Steeper than 1:10 but not steeper than 1:8	3 inches
Steeper than 1:12 but not steeper than 1:10	6 inches

For SI: 1 inch = 25.4 mm.

~~410.8.6~~ 303.8.6 **Accessible dwelling or sleeping units.** *No change to text.*

~~410.8.7~~ 303.8.7 **Type A dwelling or sleeping units.** *No change to text.*

~~410.8.8~~ 303.8.8 **Type B dwelling or sleeping units.** *No change to text.*

303.8.9 Dining areas An accessible route to raised or sunken dining areas or to outdoor seating areas is not required provided that the same services and decor are provided in an accessible space usable by any occupant and not restricted to use by people with a disability.

~~410.8.9~~ 303.8.10 **Jury boxes and witness stands.** *No change to text.*

~~410.8.10~~ 303.8.11 **Toilet rooms.** *No change to text.*

~~410.8.11~~ 303.8.12 **Dressing, fitting and locker rooms.** *No change to text.*

~~410.8.12~~ 303.8.13 **Fuel dispensers.** *No change to text.*

~~410.8.13~~ 303.8.14 **Thresholds.** *No change to text.*

~~410.8.14~~ 303.8.15 **Amusement rides.** *No change to text.*

~~410.9~~ 303.9 **Historic buildings.** These provisions shall apply to *facilities* designated as historic structures that undergo *alterations* or a *change of occupancy*, unless *technically infeasible*. Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the *facility*, as determined by the applicable governing authority, the alternative requirements of Sections ~~410.9.1~~ 303.9.1 through ~~410.9.4~~ 303.9.4 for that element shall be permitted.

> **Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in historical buildings.

~~410.9.1~~ 303.9.1 **Site arrival points.** *No change to text.*

~~410.9.2~~ 303.9.2 **Multilevel buildings and facilities.** *No change to text.*

~~410.9.3~~ 303.9.3 **Entrances.** *No change to text.*

~~410.9.4~~ 303.9.4 **Toilet and bathing facilities.** *No change to text.*

801.1 Scope. Level 2 *alterations* as described in Section 504 shall comply with the requirements of this chapter.

> **Exception:** Buildings in which the reconfiguration is exclusively the result of compliance with the accessibility requirements of Section ~~705.2~~ 303.7 shall be permitted to comply with Chapter 7.

901.2 Compliance. In addition to the provisions of this chapter, work shall comply with all of the requirements of Chapters 7 and 8. The requirements of Sections 803, 804 and 805 shall apply within all *work areas* whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.

> **Exception:** Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section ~~705.2~~ 303.7 shall not be required to comply with this chapter.

~~[BS]~~ B101.3 Qualified historic buildings and facilities subject to Section 106 of the National Historic Preservation Act. Where an *alteration* or *change of occupancy* is undertaken to a qualified *historic building* or facility that is subject to Section 106 of the National Historic Preservation Act, the federal agency with jurisdiction over the undertaking shall follow the Section 106 process. Where the state historic preservation officer or Advisory Council on Historic Preservation determines that compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, the alternative requirements of Section ~~410.9~~ 303.9 for that element are permitted.

~~[BS]~~ B101.4 Qualified historic buildings and facilities not subject to Section 106 of the National Historic Preservation Act. Where an *alteration* or *change of occupancy* is undertaken to a qualified *historic building* or facility that is not subject to Section 106 of the National Historic Preservation Act, and the entity undertaking the alterations believes that compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, the entity shall consult with the state historic preservation officer. Where the state historic preservation officer determines that compliance with the accessibility requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historical significance of the building or facility, the alternative requirements of Section ~~410.9~~ 303.9 for that element are permitted.

~~[BS]~~ B102.2.3 Direct connections. New direct connections to commercial, retail, or residential facilities shall, to the maximum extent feasible, have an accessible route complying with Section ~~705.2~~ 303.7 from the point of connection to boarding platforms and transportation system elements used by the public. Any elements provided to facilitate future direct connections shall be on an accessible route connecting boarding platforms and transportation system elements used by the public.

Delete without substitution:

~~SECTION705 ACCESSIBILITY~~

~~**705.1 General.** A *facility* that is altered shall comply with the applicable provisions in Sections 705.1.1 through 705.1.14, and Chapter 11 of the *International Building Code* unless it is *technically infeasible*. Where compliance with this section is *technically infeasible*, the alteration shall provide access to the maximum extent that is technically feasible.~~

~~A *facility* that is constructed or altered to be accessible shall be maintained accessible during occupancy.~~

~~**Exceptions:**~~

1. ~~The altered element or space is not required to be on an accessible route unless required by Section 705.2.~~
2. ~~Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing *facilities*.~~
3. ~~Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing *facilities* undergoing less than a Level 3 *alteration*.~~
4. ~~The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall meet the provisions for Type B dwelling units.~~

~~**705.1.1 Entrances.** Where an *alteration* includes alterations to an entrance, and the *facility* has an accessible entrance on an accessible route, the altered entrance is not required to be accessible unless required by Section 705.2. Signs complying with Section 1111 of the *International Building Code* shall be provided.~~

~~**705.1.2 Elevators.** Altered elements of existing elevators shall comply with ASME A17.1/CSA B44 and ICC A117.1. Such elements shall also be altered in elevators programmed to respond to the same hall call control as the altered elevator.~~

~~**705.1.3 Platform lifts.** Platform (wheelchair) lifts complying with ICC A117.1 and installed in accordance with ASME A18.1 shall be permitted as a component of an accessible route.~~

~~**705.1.4 Ramps.** Where steeper slopes than allowed by Section 1012.2 of the *International Building Code* are necessitated by space limitations, the slope of ramps in or providing access to existing facilities shall comply with Table 705.1.4.~~

~~**RAMPS**~~

~~**SLOPE**~~	~~**MAXIMUM RISE**~~
~~Steeper than 1:10 but not steeper than 1:8~~	~~3 inches~~
~~Steeper than 1:12 but not steeper than 1:10~~	~~6 inches~~

For SI: 1 inch = 25.4 mm.

705.1.5 Dining areas. An accessible route to raised or sunken dining areas or to outdoor seating areas is not required provided that the same services and decor are provided in an accessible space usable by any occupant and not restricted to use by people with a disability.

705.1.6 Jury boxes and witness stands. In *alterations*, accessible wheelchair spaces are not required to be located within the defined area of raised jury boxes or witness stands and shall be permitted to be located outside these spaces where ramp or lift access poses a hazard by restricting or projecting into a required means of egress.

705.1.7 Accessible dwelling or sleeping units. Where Group I-1, I-2, I-3, R-1, R-2 or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Accessible units apply only to the quantity of the spaces being altered.

705.1.8 Type A dwelling or sleeping units. Where more than 20 Group R-2 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type A units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered.

705.1.9 Toilet rooms. Where it is technically infeasible to alter existing toilet and bathing rooms to be accessible, an accessible family or assisted-use toilet or bathing room constructed in accordance with Section 1109.2.1 of the *International Building Code* is permitted. The family or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, directional signs indicating the location of the nearest family or assisted-use toilet room or bathing room shall be provided. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

705.1.10 Dressing, fitting and locker rooms. Where it is *technically infeasible* to provide accessible dressing, fitting, or locker rooms at the same location as similar types of rooms, one accessible room on the same level shall be provided. Where separate sex facilities are provided, accessible rooms for each sex shall be provided. Separate sex facilities are not required where only unisex rooms are provided.

705.1.11 Fuel dispensers. Operable parts of replacement fuel dispensers shall be permitted to be 54 inches (1370 mm) maximum measured from the surface of the vehicular way where fuel dispensers are installed on existing curbs.

705.1.12 Thresholds. The maximum height of thresholds at doorways shall be $^{3}/_{4}$ inch (19.1 mm). Such thresholds shall have beveled edges on each side.

705.1.13 Extent of application. An *alteration* of an existing element, space, or area of a *facility* shall not impose a requirement for greater accessibility than that which would be required for new construction. *Alterations* shall not reduce or have the effect of reducing accessibility of a

~~*facility* or portion of a *facility*.~~

~~**705.1.14 Amusement rides.** Where the structural or operational characteristics of an amusement ride are altered to the extent that the amusement ride's performance differs from that specified by the manufacturer or the original design, the amusement ride shall comply with requirements for new construction in accordance with Section 1110.4.8 of the *International Building Code*.~~

~~**705.2 Alterations affecting an area containing a primary function.** Where an *alteration* affects the accessibility to a, or contains an area of, *primary function*, the route to the primary function area shall be accessible. The accessible route to the *primary function* area shall include toilet facilities and drinking fountains serving the area of *primary function*.~~

~~**Exceptions:**~~

1. ~~The costs of providing the accessible route are not required to exceed 20 percent of the costs of the alterations affecting the area of *primary function*.~~
2. ~~This provision does not apply to *alterations* limited solely to windows, hardware, operating controls, electrical outlets and signs.~~
3. ~~This provision does not apply to *alterations* limited solely to mechanical systems, electrical systems, installation or *alteration* of fire protection systems and abatement of hazardous materials.~~
4. ~~This provision does not apply to *alterations* undertaken for the primary purpose of increasing the accessibility of a *facility*.~~
5. ~~This provision does not apply to altered areas limited to Type B dwelling and sleeping units.~~

~~SECTION806 ACCESSIBILITY~~

~~**806.1 General.** A building, *facility*, or element that is altered shall comply with this section and Section 705.~~

~~**806.2 Stairways and escalators in existing buildings.** In *alterations* where an escalator or stairway is added where none existed previously, an accessible route shall be provided in accordance with Sections 1104.4 and 1104.5 of the *International Building Code*.~~

~~SECTION906 ACCESSIBILITY~~

~~**906.1 General.** A building, *facility* or element that is altered shall comply with this section and Sections 705 and 806.~~

~~**906.2 Type B dwelling or sleeping units.** Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered.~~

~~**Exception:** Group I-1, I-2, R-2, R-3 and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991 are not required to provide Type B dwelling or sleeping units.~~

~~SECTION1006 ACCESSIBILITY~~

~~**1006.1 General.** Accessibility in portions of buildings undergoing a *change of occupancy* classification shall comply with Section 1012.8.~~

~~**1012.1.4 Accessibility.** All buildings undergoing a change of occupancy classification shall comply with Section 1012.8.~~

~~**1012.8 Accessibility.** *Existing buildings* that undergo a change of group or occupancy classification shall comply with this section.~~

> ~~**Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing buildings and facilities undergoing a *change of occupancy* in conjunction with less than a Level 3 *alteration*.~~

~~**1012.8.1 Partial change in occupancy.** Where a portion of the building is changed to a new occupancy classification, any *alteration* shall comply with Sections 705, 806 and 906, as applicable.~~

~~**1012.8.2 Complete change of occupancy.** Where an entire building undergoes a *change of occupancy*, it shall comply with Section 1012.8.1 and shall have all of the following accessible features:~~

1. ~~At least one accessible building entrance.~~
2. ~~At least one accessible route from an accessible building entrance to *primary function* areas.~~
3. ~~Signage complying with Section 1111 of the *International Building Code*.~~
4. ~~Accessible parking, where parking is provided.~~
5. ~~At least one accessible passenger loading zone, where loading zones are provided.~~
6. ~~At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.~~

~~Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible.~~

> ~~**Exception:** The accessible features listed in Items 1 through 6 are not required for an accessible route to Type B units.~~

~~SECTION1105 ACCESSIBILITY~~

~~**1105.1 Minimum requirements.** Accessibility provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, *primary function* shall comply with the requirements of Sections 705, 806 and 906, as applicable.~~

~~**1105.2 Accessible dwelling units and sleeping units.** Where Group I-1, I-2, I-3, R-1, R-2 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for accessible units apply only to the quantity of spaces being added.~~

~~**1105.3 Type A dwelling or sleeping units.** Where more than 20 Group R-2 dwelling or sleeping units are being added, the requirements of Section~~

~~1107 of the *International Building Code* for Type A units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being added.~~

~~**1105.4 Type B dwelling or sleeping units.** Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of spaces being added.~~

CHAPTER 12 HISTORIC BUILDINGS

~~SECTION1204 ALTERATIONS~~

~~**1204.1 Accessibility requirements.** The provisions of Sections 705, 806 and 906, as applicable, shall apply to facilities designated as historic structures that undergo *alterations*, unless *technically infeasible*. Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the building or *facility*, as determined by the *code official*, the alternative requirements of Sections 1204.1.1 through 1204.1.4 for that element shall be permitted.~~

> ~~**Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in historical buildings.~~

~~**1204.1.1 Site arrival points.** At least one accessible route from a site arrival point to an *accessible* entrance shall be provided.~~

~~**1204.1.2 Multilevel buildings and facilities.** An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.~~

~~**1204.1.3 Entrances.** At least one main entrance shall be accessible.~~

> ~~**Exceptions:**~~
>
> ~~1. If a main entrance cannot be made accessible, an accessible nonpublic entrance that is unlocked while the building is occupied shall be provided; or~~
> ~~2. If a main entrance cannot be made accessible, a locked accessible entrance with a notification system or remote monitoring shall be provided.~~

~~**1204.1.4 Toilet and bathing facilities.** Where toilet rooms are provided, at least one accessible family or assisted-use toilet room complying with Section 1109.2.1 of the *International Building Code* shall be provided.~~

~~**1205.15 Accessibility requirements.** The provisions of Section 1012.8 shall apply to facilities designated as historic structures that undergo a *change of occupancy*, unless *technically infeasible*. Where compliance with the requirements for accessible routes, ramps, entrances, or toilet rooms would threaten or destroy the historic significance of the building or *facility*, as determined by the authority having jurisdiction, the alternative requirements of Sections 1204.1.1 through 1204.1.4 for those elements shall be permitted~~

> ~~**Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be~~

~~provided in historical buildings.~~

~~**1401.2.5 Accessibility requirements.** Accessibility shall be provided in accordance with Section 410 or 605.~~

SECTION 410 ACCESSIBILITY FOR EXISTING BUILDINGS

Reason: This change is written to move all of the accessibility requirements into a single section in new IEBC Section 303. New 303 is editorial with no change in criteria or requirements and simply renumbers Section 410 to Section 303. All accessibility requirements for existing buildings are placed in one section (303) allowing a focused and clear set of requirements for users to understand. In the existing IEBC, two of the three compliance methods (prescriptive and work area methods) have provisions for accessibility that are virtually identical. In addition, the existing performance method refers to the accessibility provisions of the other compliance methods.

The intent of this change is a reorganization of accessibility provisions to avoid duplication of the same requirements in multiple code sections. The text of requirements is relocated, but the content of the moved sections is not changed. There is no intent to change code requirements, only to recognize them. Note that Section 303.8.9 addressing dining areas is included only because that section has not yet been deleted from Chapter 7 as it was in current Section 410.

The identical provisions in all subsequent sections have been deleted.
We understand that there are several proposals from BCAC to coordinate the provisions between Chapter 4 and 7. Our intent is that those proposals would be incorporated into the change. This move is editorial only.

Cost Impact: Will not increase the cost of construction
This change simply consolidate the various crieria in the IEBC, and should not change the cost of construction.

EB33-15 : 410-COLLINS4528

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: Though this proposal was viewed as a shift from the format of the IEBC it was felt for consistency purposes that the accessibility provisions should be located in one location within Chapter 3. The provisions are meant to apply equally to all methods.

Assembly Motion: Disapprove
Online Vote Results: Failed
Support: 36.31% (61) Oppose: 63.69% (107)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Committee, National Council of Structural Engineers Associations (dbonowitz@att.net) requests

Disapprove.

Commenter's Reason: It turns out that EB 33, contrary to the proponents' reason statement and testimony at the hearings, makes several unintended substantive changes to accessibility provisions. These points did not come up at the hearings. EB33 is quite complicated -- it deletes, it renumbers, it relocates, it recombines, it slices and dices -- so much so that in the little time available at the hearings the committee was forced to take the word of the proponents that the proposal is entirely editorial. Upon further review, at least three substantive provisions will be changed if EB33 is approved.
1. IEBC 806.2 requires an accessible route when a stair of escalator is added. EB 33 replaces this provision with 303.8.4 (current 410.8.4), which has an additional trigger for "major structural modifications," whatever those are. Thus EB 33 changes the code, contrary to its claim, replacing a clear, thoughtful provision with an unclear, obsolete, and unenforceable one.

2. IEBC 906.2 has an Exception, added in 2015. EB 33 replaces that section with the second half of 303.8.8 (current 410.8.8) which does not have the exception. Thus, EB 33 changes the content of the code and undoes a change just made in 2015.

3. IEBC 705.1.1 sensibly does not require a new accessible entrance for most Level 1 Alterations. EB 33, however, makes no distinction between alteration levels, thus dismissing one of the key features of the IEBC. As a result, it replaces this sensible provision with 303.8.1 (current 410.8.1) which requires that a new accessible entrance must be provided with almost ANY alteration. Under EB 33, if I just want to reroof my building, renovate part of the exterior cladding, or mitigate some seismic falling hazards, I will be required to provide a new accessible entrance that Chapter 7 did not require.

Are there more examples of things the proponents missed? Who knows. But even these basic examples make clear that the current accessibility provisions are NOT "virtually identical," as proponents claim.

Just as important, in consolidating the disability provisions, the proponents have decided to reject the clearer and better maintained language and organization of the Work Area method, and instead revert to the confusing and contradictory language remaining in the prescriptive method (current sections 410.7 and 410.8, for example).

The worst part is that EB 33 is not even necessary. The duplication cited by the proponents is actually duplication only in the eyes of an editor. Yes, some of the same or similar words occur in more than one place in the code, but the code user won't see them that way. Once you pick a compliance method, and identify your project type, you only use the applicable code chapter, so if the same words appear in another chapter, who cares?

Meanwhile, even while approving EB 33, the committee acknowledged that it fundamentally changes the organization and philosophy of the IEBC. If the problems EB 33 is meant to solve were real problems, a "shift" in the format (as the committee calls it) might be worthwhile. But as shown here, the problem is not real, the benefits are thus illusory, and the implementation ends up making surprising substantive changes and leaving the IEBC user with obsolete and confusing provisions.

Staff Note: A series of code changes were proposed for coordination of the accessibility requirements between the prescriptive method and work area method. Please consult the Code Change Monograph and the Report of Committee Action Hearing on this code change proposal and code change proposals EB35, EB40, EB41, EB42, EB43, EB44, EB45, EB47, EB56 and EB65.

Public Comment 2:

Proponent : Steven McDaniel, representing New York State

Building Officials Conference requests Disapprove.

Commenter's Reason: Because the IEBC contains several compliance methods there is a need to have a "Guidance" chapter. That chapter is Chapter 3, this is the chapter that directs you to where you need to go for the compliance path that you choose. This Chapter does not contain any regulatory language, so adding accessibility requirements here is problematic. The IEBC is set up in "Project Based" Chapters for compliance. This code change now adds "Discipline Based" language to this Chapter.
We Strongly urge Disapproval of this code change.

EB33-15

EB35-15

410.2, 705.1, 1508.2 (New)

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.2 Maintenance of facilities. A *facility* that is constructed or altered to be *accessible* shall be maintained *accessible* during occupancy to the maximum extent feasible.

705.1 General. A *facility* that is altered shall comply with the applicable provisions in Sections 705.1.1 through 705.1.14, and Chapter 11 of the *International Building Code* unless it is *technically infeasibl* e. Where compliance with this section is *technically infeasible* , the alteration shall ~~provide access~~ comply with these requirements to the maximum extent that is technically feasible.

~~A *facility* that is constructed or altered to be accessible shall be maintained accessible during occupancy.~~

Exceptions:

1. The altered element or space is not required to be on an accessible route unless required by Section 705.2.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing *facilities* .
3. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing *facilities* undergoing less than a Level 3 *alteration* .
4. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall meet the provisions for Type B dwelling units.

Add new text as follows:

1508.2 During construction. A facility that is constructed or altered to be accessible shall be maintained accessible during occupancy to the maximum extent feasible.

Reason: There is a series of proposals intended to coordinate the provisions in the first and second options in the IEBC. Requirements for maintenance of facilities during construction in Sections 410.2 and 705.1 should match. However, it was also felt that maintenance of facilities during construction would be more appropriately located under Chapter 15, Construction Safeguards. Maintenance/repairs to maintain accessibility is already addressed in Section 605.1.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under

the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification and coordination of current requirements; therefore, there is no impact on the cost.

EB35-15 : 410.2-KULIK3344

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There was concern that the phrase "maximum extent feasible" would create too large of a loophole for compliance.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

410.2 Maintenance of facilities. A *facility* that is constructed or altered to be *accessible* shall be maintained *accessible* during occupancy to the maximum extent that is technically feasible.

705.1 General. A *facility* that is altered shall comply with the applicable provisions in Sections 705.1.1 through 705.1.14, and Chapter 11 of the *International Building Code* unless it is *technically infeasibl*e. Where compliance with this section is *technically infeasible*, the alteration shall comply with these requirements to the maximum extent that is technically feasible. A facility that is constructed or altered to be accessible shall be maintained accessible during occupancy to the maximum extent that is technically feasible.

Exceptions:

1. The altered element or space is not required to be on an accessible route unless required by Section 705.2.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing *facilities*.
3. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing *facilities* undergoing less than a Level 3 *alteration*.
4. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall meet the provisions for Type B dwelling units.

~~**1508.2 During construction.** A facility that is constructed or altered to be accessible shall be maintained accessible during occupancy to the maximum extent feasible.~~

Commenter's Reason: The ICC Building Code Action Committee requests approval of this public comment. The committee was concerned that the phrase "maximum extent feasible" could create a loophole. The revised proposal uses the term "technically infeasible" which is a defined term and consistent with the ADA Standards and places it in both Sections 410.2 and 705.1.
The proposal will no longer contain the move of the language from 705.1 to new Section1508.2, but will keep the existing language.

EB35-15

EB37-15

410.4.1, 410.4.2, 1012.8.1, 1012.8.2

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.4 Change of occupancy. *Existing buildings* that undergo a change of group or occupancy shall comply with this section.

> **Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in *existing buildings* and facilities undergoing a *change of occupancy* in conjunction with *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.

410.4.1 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification or the building has an aggregate area of not more than 3,000 square feet (278.7 m^2), any *alterations* shall comply with Sections 410.6, 410.7 and 410.8.

410.4.2 Complete change of occupancy. Where an entire building undergoes a *change of occupancy* and has an aggregate are of more than 3,000 square feet (278.7 m^2), it shall comply with Section 410.4.1 and shall have all of the following accessible features:

1. At least one accessible building entrance.
2. At least one accessible route from an accessible building entrance to *primary function* areas.
3. Signage complying with Section 1111 of the *International Building Code*.
4. Accessible parking, where parking is being provided.
5. At least one accessible passenger loading zone, when loading zones are provided.
6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.

Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible.

> **Exception:** The accessible features listed in Items 1 through 6 are not required for an accessible route to Type B units.

1012.8 Accessibility. *Existing buildings* that undergo a change of group or occupancy classification shall comply with this section.

Exception: Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing buildings and facilities undergoing a *change of occupancy* in conjunction with less than a Level 3 *alteration*.

1012.8.1 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification or the building has an aggregate area of not more than 3,000 square feet (278.7 m^2), any *alteration* shall comply with Sections 705, 806 and 906, as applicable.

1012.8.2 Complete change of occupancy. Where an entire building undergoes a *change of occupancy* and has an aggregate area of more than 3,000 square feet (278.7 m^2), it shall comply with Section 1012.8.1 and shall have all of the following accessible features:

1. At least one accessible building entrance.
2. At least one accessible route from an accessible building entrance to *primary function* areas.
3. Signage complying with Section 1111 of the *International Building Code* .
4. Accessible parking, where parking is provided.
5. At least one accessible passenger loading zone, where loading zones are provided.
6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.

Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible.

Exception: The accessible features listed in Items 1 through 6 are not required for an accessible route to Type B units.

Reason: The current provisions for a complete change of occupancy is sometimes very difficult or costly for small facilities undergoing a complete change of occupancy. The 3,000 sq.ft. limit proposed is consistent with Live/work units. These small facilities will have the same accessibility requirements, regardless if the alteration is a change of occupancy or not. Changes of occupancy are probably more likely to include alterations, so a small facility would be looking at improvements to the accessible route up to the 20% cost limitation. The larger facilities will still have to provide an accessible route when the entire facility undergoes a complete change of occupancy.
The current list of 6 items can be read to require an accessible route, including an elevator, regardless of the cost of the items and how much is spent on any alterations. For the small building, this can result in an existing building being so expensive to fix that it cannot be used for anything other than its original purpose.

What is currently proposed for small buildings is similar to what is allowed for historic buildings in Section 410.9, 1204.1 and 1205.15.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC).

The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
As indicated in the reason, this would be a possible reduction in cost for small buildings undergoing a complete change in occupancy.

EB37-15 : 410.4.1-KULIK3363

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Though there was some merit to having a benchmark there was concern with origination of 3000 square feet. Additionally, the wording proposed was felt to be somewhat awkward.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Existing Building Code

410.4 Change of occupancy. ~~*Existing*~~ *Where existing buildings* ~~that~~ undergo a change of group or occupancy any alterations shall comply with Sections 410.6, 410.7 and 410.8 as applicable.~~this section.~~

> ~~**Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in *existing buildings* andfacilities undergoing a *change of occupancy* in conjunction with *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.~~

~~**410.4.1 Partial change in occupancy.** Where a portion of the building is changed to a new occupancy classification, any *alterations* shall comply with Sections 410.6, 410.7 and 410.8.~~

~~**410.4.2 Complete change of occupancy.** Where an entire building undergoes a *change of occupancy*, it shall comply with Section 410.4.1 and shall have all of the following accessible features:~~

1. At least one accessible building entrance.
2. At least one accessible route from an accessible building entrance to *primary function* areas.
3. Signage complying with Section 1111 of the *International Building Code*.
4. Accessible parking, where parking is being provided.
5. At least one accessible passenger loading zone, when loading zones are provided.
6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.

Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible.

Exception: The accessible features listed in Items 1 through 6 are not required for an accessible route to Type B units.

1012.8 Accessibility. *Existing* *Where existing* *buildings* that undergo a change of group or occupancy classification any alterations shall comply with Sections705, 806 and 906, as applicable.this section.

Exception: Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing buildings andfacilities undergoing a *change of occupancy* in conjunction with less than a Level 3 *alteration*.

•

1012.8.1 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, any *alteration* shall comply with Sections 705, 806 and 906, as applicable.

1012.8.2 Complete change of occupancy. Where an entire building undergoes a *change of occupancy*, it shall comply with Section 1012.8.1 and shall have all of the following accessible features:

1. At least one accessible building entrance.
2. At least one accessible route from an accessible building entrance to *primary function* areas.
3. Signage complying with Section 1111 of the *International Building Code*.
4. Accessible parking, where parking is provided.
5. At least one accessible passenger loading zone, where loading zones are provided.
6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.

Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible.

Exception: The accessible features listed in Items 1 through 6 are not required for an accessible route to Type B units.

Commenter's Reason: The ICC Building Code Action Committee requests approval of this public comment.
The MOE Development Committee did not agree with the 3,000 sq.ft. limit for a change of occupancy. In the original proposal, the 3,000 sq.ft. was intended as a compromise limit between when the list of 6 items in Section 410.4.2 was mandatory. Since large building undergoing a change of occupancy typically include alteration, BCAC is suggesting that maybe a compromise limit is not needed. A change of occupancy should be handled the same as any alteration for an existing building. After all, there is no technical or logical justification to ask more from a business changing to a mercantile than you would ask from a business staying as a business.

The current list of 6 items can be read to require an accessible route, including a significant ramp, a platform lift, or an elevator, regardless of the cost of the items and how much is spent on any alterations. For the small building, this can result in an existing building being so expensive to fix that it cannot be used for anything other than its original purpose. It is logical to allow all buildings to improve accessibility as they alter. Existing buildings will become accessible over time. This is consistent with the provisions in the ADA which does not address changes in occupancy, just alterations.

The exceptions for Type B units are not needed because the same exceptions are included in the referenced sections (410.6, Exception 4, 410.7, Exception 5, 705.1, Exception 3 and 705.2, Exception 5).

Changes to Sections 410 and 1012 will create consistency between the different options in the IEBC

EB37-15

EB38-15

410.4.2, 1012.8.2

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.4.2 Complete change of occupancy. Where an entire building undergoes a *change of occupancy* , it shall comply with Section 410.4.1 and shall have at least one accessible route throughout the building.~~all of the following accessible features:~~

1. ~~At least one accessible building entrance.~~
2. ~~At least one accessible route from an accessible building entrance to *primary function* areas.~~
3. ~~Signage complying with Section 1111 of the *International Building Code*.~~
4. ~~Accessible parking, where parking is being provided.~~
5. ~~At least one accessible passenger loading zone, when loading zones are provided.~~
6. ~~At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.~~

Where it is *technically infeasible* to comply with the new construction standards for ~~any of these requirements for a change of group or occupancy~~ an accessible route, the ~~above items~~ accessible route shall conform to the requirements to the maximum extent technically feasible.

Exception: The accessible ~~features listed in Items 1 through 6 are~~ route is not required ~~for an accessible route~~ to Type B units required by Section 410.8.8.

1012.8.2 Complete change of occupancy. Where an entire building undergoes a *change of occupancy* , it shall comply with Section 1012.8.1 and shall have at least one accessible route throughout the building.~~all of the following accessible features:~~

1. ~~At least one accessible building entrance.~~
2. ~~At least one accessible route from an accessible building entrance to primary function areas.~~
3. ~~Signage complying with Section 1111 of the International Building Code.~~
4. ~~Accessible parking, where parking is being provided.~~
5. ~~At least one accessible passenger loading zone, when loading zones are provided.~~
6. ~~At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.~~

Where it is *technically infeasible* to comply with the new construction standards for ~~any of these requirements for a change of group or occupancy~~ an accessible route, the ~~above items~~ accessible route shall conform to the requirements to the maximum extent technically feasible.

Exception: The accessible ~~features listed in Items 1 through 6 are~~ route is not required ~~for an accessible route~~ to Type B units required by Section 906.2 and 1105.4.

Reason: The intent of this proposal is to clarify what is expected when a building undergoes a complete change of occupancy, regardless if it has alterations or not. The list of six items is basically describing the items on an accessible route. Stating it simply will increase understanding of the requirement. This should also eliminate the question as to if this list is intended to over ride new construction exceptions for percentages of accessible entrances or where an elevator is not required. It was never intended to ask for an existing building to exceed new construction requirements.
There is a wide variety of interpretations for the list of 6 items in Section 410.4.2 and 1202.8.2. This list was originally from a draft of the new ADAAG during development. This was a list of priority items for accessible routes that ended up not being included in ADA. It was decided that designers should be able to use the money where there was the best advantage with the goal of existing buildings become as accessible as feasible over time. In addition, ADA does not address a change in occupancy; the 2010 ADA standard treats alterations the same, change of occupancy or not.

Toilet rooms and drinking fountains are not in the current list. These items would require improvements for accessibility if the complete change of occupancy also included alterations to a primary function area in accordance with Sections 410.7 and 705.2.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

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Cost Impact: Will not increase the cost of construction
The proposal is a clarification of current requirements; therefore, there is no impact on the cost.

EB38-15 : 410.4.2-KULIK3402

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal was disapproved based upon concerns that the

revised language expands the requirements too broadly. In addition, it was felt that this expansion would significantly increase cost of construction

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

410.4.2 Complete change of occupancy.
Where an entire building undergoes a *change of occupancy*, it shall comply with Section 410.4.1 and shall have at least one accessible route ~~throughout the building.~~ to primary function areas.

Where it is *technically infeasible* to comply with the new construction standards for an accessible route, the accessible route shall conform to the requirements to the maximum extent technically feasible.

> **Exception:** The accessible route is not required to Type B units required by Section 410.8.8.

1012.8.2 Complete change of occupancy.
Where an entire building undergoes a *change of occupancy*, it shall comply with Section 1012.8.1 and shall have at least one accessible route ~~throughout the building~~ to primary function areas.

Where it is *technically infeasible* to comply with the new construction standards for an accessible route, the accessible route shall conform to the requirements to the maximum extent technically feasible.

> **Exception:** The accessible route is not required to Type B units required by Section 906.2 and 1105.4.

Commenter's Reason: The ICC Building Code Action Committee requests approval of this public comment. The list of 6 items was originally a priority list for accessible route requirements. While no longer a priority list, the requirements in the list are not interpreted or enforced consistently. Therefore, this language should be removed from the code.
The change to 'primary function areas' versus 'throughout the building' is to address concerns brought up during testimony. Testimony stated that bathrooms and drinking fountains were being added to the list, but since these elements are not referenced here as they are in Sections 410.7 and 705.2, this is not the case. Also, these elements are specifically excluded in the definition of 'primary function'. There was also concern that 'throughout the building' would include any closets and every corner. By changing the phrase to 'primary function areas' that would be consistent with alterations for where accessible routes would be required. Existing Sections 410.3 and 705.1.13 would allow for a building to not exceed new construction requirements.

This is meant as a clarification, not an expansion of scope so there should be no increase in the cost of construction.

EB42-15

410.8.6, 410.8.7, 410.8.8

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.8.6 Accessible dwelling or sleeping units. Where Group I-1, I-2, I-3, R-1, R-2 or R-4 dwelling or sleeping units are being altered or added, the requirements of Section 1107 of the *International Building Code* for Accessible units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of spaces being altered or added.

410.8.7 Type A dwelling or sleeping units. Where more than 20 Group R-2 dwelling or sleeping units are being altered or added, the requirements of Section 1107 of the *International Building Code* for Type A units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered or added.

410.8.8 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type B units apply only to the quantity of the spaces being added. Where Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered and where the work area is greater than 50 percent of the aggregate area of the building, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *Internatinoal Buidling Code* for visible alarms apply only to the quantity of the spaces being altered.

Reason: There is a series of proposals intended to coordinate the provisions in the first and second options in the IEBC. This phrase was deleted from Sections 410.8.7, 410.8.8 and 410.8.9 by code change G215-07/08. The reason given was that when visible alarms are required to be added or altered is addressed in IBC/IFC Chapter 9. However, in Chapter 9, if a system is touched, the whole building system needs to be upgraded. This would limit the change to just the units being altered.

ALTERATIONS – LEVEL 1

705.1.8 Type A dwelling or sleeping units. Where more than 20 Group R-2 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type A units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered.

ALTERATIONS – LEVEL 3

906.2 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered.

Exception: Group I-1, I-2, R-2, R-3 and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991 are not

required to provide Type B dwelling or sleeping units.

ADDITION

1105.3 Type A dwelling or sleeping units. Where more than 20 Group R-2 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type A units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being added.

1105.4 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of spaces being added.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

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Cost Impact: Will not increase the cost of construction
The proposal limits the revisions to the fire alarm system. Therefore, there will be no additional costs to construction.

EB42-15 : 410.8.6-KULIK3350

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There was concern with how this proposal would work with the exception to Section 907.5.2.3 of the IBC and IFC. More specifically, the concern was that visible alarms would potentially be required by this proposal where not required by the IBC or IFC.

Assembly Motion: As Submitted

Online Vote Results: Failed

Support: 35.03% (55) Oppose: 64.97% (102)

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by

this Public Comment.

Replace Proposal as Follows:

2015 International Existing Building Code

705.1.8 Type A dwelling or sleeping units. Where more than 20 Group R-2 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type A units ~~and Chapter 9 of the *International Building Code* for visible alarms~~ apply only to the quantity of the spaces being altered.

906.2 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type B units ~~and Chapter 9 of the *International Building Code* for visible alarms~~ apply only to the quantity of the spaces being altered.

> **Exception:** Group I-1, I-2, R-2, R-3 and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991 are not required to provide Type B dwelling or sleeping units.

1105.3 Type A dwelling or sleeping units. Where more than 20 Group R-2 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type A units ~~and Chapter 9 of the *International Building Code* for visible alarms~~ apply only to the quantity of the spaces being added.

1105.4 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type B units ~~and Chapter 9 of the *International Building Code* for visible alarms~~ apply only to the quantity of spaces being added.

Commenter's Reason: The ICC Building Code Action Committee is requesting approval of this public comment. The IEBC Development Committee felt that inserting this language would override the alarm requirements in the IFC. This was not the intent. The proposal was for coordination between the prescriptive and work area methods in the IEBC. This modification is to strike the same language from the work area method.

EB42-15

EB43-15

410.8.8, 410.8.9 (New)

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.8.8 Additions with Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type B units apply only to the quantity of the spaces being added.

410.8.9 Alterations with Type B dwelling and sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered and where the work area is greater than 50 percent of the aggregate area of the building, the requirements of Section 1107 of the International Building Code for Type B units apply only to the quantity of the spaces being altered.

Reason: There is a series of proposals intended to coordinate the provisions in the first and second options in the IEBC. Section 410.8.8 is being split to separate additions and alterations. This is a clarification that is consistent with Sections 906.2, 1012.8 and 1105.4.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

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Cost Impact: Will not increase the cost of construction
The proposal is a clarification and coordination of current requirements; therefore, there is no impact on the cost.

EB43-15 : 410.8.8-KULIK3358

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal was disapproved based primarily on the preference to code change proposal EB44-15 and concern with the change to "four or more" where it had simply been based upon any number of units being altered. EB44-15 was also disapproved.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: The ICC Building Code Action Committee requests approval of this proposal as submitted. The IEBC Development committee stated they preferred EB44, but then disapproved EB44. The issue between EB 44 and EB65 was regarding the difference in the exception between the prescriptive and work area methods. This issue was resolved by AS for EB65. The purpose of this proposal is just to split the requirements for Type B units in the prescriptive method to match the text as shown in the work area method (Section 906.2, 1012.8 and 1105.4). This is editorial only.

EB43-15

EB44-15
410.8.8

Proposed Change as Submitted

Proponent : Dan Buuck, National Association of Home Builders, representing National Association of Home Builders (dbuuck@nahb.org)

2015 International Existing Building Code

Revise as follows:

410.8.8 Additions with Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type B units apply only to the quantity of the spaces being added.

410.8.9 Alterations with Type B dwelling and sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered and where the work area is greater than 50 percent of the aggregate area of the building, the requirements of Section 1107 of the International Building Code for Type B units apply only to the quantity of the spaces being altered.

> **Exception:** Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991 are not required to provide Type B dwelling or sleeping units.

Reason: Section 410.8.8 is being split to separate additions and alterations (similar to Section 906.2 and 1105.4). The addition of the exception to Section 410.8.9 is to coordinate with Section 906.2. The intent is to coordinate the requirements for Type B dwelling units within the options available in the IEBC.

This same exception was added to Section 906.2 during the last code cycle to bring it in line with the provisions of FHA. It was approved by the committee and had no public comments. This proposal fixes the unintended omission of the same language in Section 410.8.9. These provisions need to include similar language, because they are parallel sections.

Having this language in the IEBC allows buildings that were previously occupied to be revitalized without triggering requirements that would exceed the federal legislation. Too often existing building owners who submit plans to alter an existing residential building which was built before the FHA guidelines went into effect are told that they must comply with the accessible requirements for new buildings. This exception brings the IEBC in line with the federal guidelines.

For reference, FHA regulations state "The design requirements apply to buildings built for first occupancy after March 13, 1991, which fall under the definition of "covered multifamily dwellings."

Sections 906.2 and 1105.4 are shown below for comparison:

906.2 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the International Building Code for Type B units and Chapter 9 of the International Building Code for visible alarms apply only to the quantity of the spaces being altered.

> **Exception:** Group I-1, I-2, R-2, R-3 and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991 are not required to provide Type B dwelling or sleeping units.

1105.4 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of

Section 1107 of the International Building Code for Type B units and Chapter 9 of the International Building Code for visible alarms apply only to the quantity of spaces being added.

Cost Impact: Will not increase the cost of construction
This proposal limits the Type B units requirements to only buildings that should have complied with the Fair Housing Act at the time of initial construction. Therefore, older institutional and residential buildings would not have the additional costs of upgrading for accessibility.

EB44-15 : 410.8.8-BUUCK4900

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The concern with this proposal is allowing the same exception in the prescriptive method as work area method. The change was seen as too significant. There was also concern with determining the dates when a change of occupancy was issued.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Dan Buuck, representing National Association of Home Builders (dbuuck@nahb.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

410.8.8 Additions with Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type B units apply only to the quantity of the spaces being added.

410.8.9 Alterations with Type B dwelling and sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered and where the work area is greater than 50 percent of the aggregate area of the building, the requirements of Section 1107 of the International Building Code for Type B units apply only to the quantity of the spaces being altered.

> **Exception:** Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March ~~15~~ 14, 1991 are not required to provide Type B dwelling or sleeping units.

Commenter's Reason: The purpose of the proposed exception is to align the code with the Fair Housing Act. For reference, FHA regulations state "The design requirements apply to buildings built for first occupancy after March 13, 1991, which fall under the definition of "covered multifamily dwellings."

The committee reason states a concern that this exception would be included in the prescriptive method AND the work area method, as if that was problematic. Actually this exception should apply to both instances, because that would allign both methods with the FHA and avoid confusion.

The second reason which the committee discussed was that determining when the certificate of occupancy was issued. This is not as big of a challenge as some made it out to be. The vast majority of counties have this information available if the Department of Building Safety doesn't. Most areas of a town or city fall into certain decades of construction anyway, making it clear that a house was occupied long before (or after) the cut-off date.

Note the only modification made to the original proposal was a minor adjustment to the date in order to bring it fully in line with the FHA provision.
See the similar public comment for EB 65-15.

EB44-15

EB46-15

410.8.10, 410.9.4, 705.1.9, 1204.1.4

Proposed Change as Submitted

Proponent : Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Existing Building Code

Revise as follows:

410.8.10 Toilet rooms. Where it is *technically infeasible* to alter existing toilet and bathing rooms to be *accessible*, a unisex toilet room or bathing room shall be provided. The unisex toilet room or bathing room shall be constructed as an *accessible* family or assisted-use toilet or bathing room ~~constructed~~ in accordance with Section ~~1109.2.1~~ 1109.2.1.2, 1109.2.1.3, 1109.2.1.5, 1109.2.1.6 and 1109.2.1.7 of the *International Building Code*.~~is~~ A unisex toilet room shall be permitted to contain two water closets. The ~~family or assisted-use~~ unisex toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, ~~provide~~ directional signs shall be provided indicating the location of the nearest ~~family or assisted-use~~ unisex toilet room or bathing room. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

410.9.4 Toilet and bathing facilities. Where toilet rooms are provided, at least one unisex toilet shall be provided. The unisex toilt room shall be constructed as an accessible family or assisted-use toilet room complying with ~~Section 1109.2.1~~ Sections 1109.2.1.2, 1109.2.1.5, 1109.2.1.6 and 1109.2.1.7 of the *International Building Code*. A unisex toilet room shall be ~~provided~~ permitted to contain two water closets.

705.1.9 Toilet rooms. Where it is technically infeasible to alter existing toilet and bathing rooms to be accessible, a unisex toilet room or bathing room shall be provided. The unisex toilet room or bathing room shall be constructed as an accessible family or assisted-use toilet or bathing room ~~constructed~~ in accordance with Section ~~1109.2.1~~ 1109.2.1.2, 1109.2.1.3, 1109.2.1.5, 1109.2.1.6 and 1109.2.1.7 of the *International Building Code*.~~is~~ A unisex toilet room shall be permitted to contain two water closets. The ~~family or assisted-use~~ unisex toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, directional signs indicating the location of the nearest ~~family or assisted-use~~ unisex toilet room or bathing room shall be provided. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

1204.1.4 Toilet and bathing facilities. Where toilet rooms are provided, at least one unisex toilet shall be provided. The unisex toilet room shall be constructed as an accessible family or assisted-use toilet room complying with ~~Section 1109.2.1~~ Sections 1109.2.1.2, 1109.2.1.5, 1109.2.1.6 and 1109.2.1.7 of the *International Building Code*. A unisex toilet room shall be ~~provided~~ permitted to contain two water closets.

Reason: The proposals to Sections 410.9.4 and 705.1.9 are for altered buildings and are exactly the same. The proposals to Section 410.9.4 and 1204.1.4 are for historic buildings, and are the same. The code change seeks to address all in the same manner.
The concept of the alternative toilet/bathing room has been confused between the IBC's intent to provide additional access and usability in the family and assisted-use toilet and bathing rooms; and, the unisex toilet/bathing rooms intended to provide some acessibility where none would otherwise be available. The former is intended to be requried only in mercantile and assembly occupnacies where other accessible group toilet/bathing rooms are provided. The latter is intended to provide at least one accesisble set of plumbing fixtures in an existing buidling where no other accessible plumbing fixtures are provided. One is for new construction and one is for existing construction. These are different needs and should be identified as such and given different names accordingly.

It would be easy to simply have a "one size fits all" approach to both of these. However, the federal 2010 ADA Standards for Accessible Design includes different fixtures within the room than what is included in the IBC. Both sets of rules allow two options for the toilet room fixture counts and two for the bathing room fixture counts:

	IBC Family or Assisted Use Toilet and Bathing Rooms (current)			
	Toilet Room A	Toilet Room B	Bathing Room A	Bathing Room B
Lavatory	1	1	1	1
Water Closet	1	1	1	1
Urinal	0	1	0	0
Shower	n/a	n/a	1	0
Bathtub	n/a	n/a	0	1

In some cases the two sets of rules align. In others they do not. These prposed changes would place the IEBC unisex toilet/bathing rooms in line with the provisions of the 2010 Standards for unisex toilet/bathing rooms.

The 2010 ADA Standards for Accessible Design:

Section 213.2 identifies, in exceptions 1 and 2 when the unisex toilet room is required.

> **213.2 Toilet Rooms and Bathing Rooms.** Where toilet rooms are provided, each toilet room shall comply with 603. Where bathing rooms are provided, each bathing room shall comply with 603.
>
> > **EXCEPTIONS:** 1. In alterations where it is technically infeasible to comply with 603, altering existing toilet or bathing rooms shall not be required where a single unisex toilet room or bathing room complying with 213.2.1 is provided and located in the same area and on the same floor as existing inaccessible toilet or bathing rooms.
> >
> > 2. Where exceptions for alterations to qualified historic buildings or facilities are permitted by 202.5, no fewer than one toilet room for each sex complying with 603 or one unisex toilet room complying with 213.2.1 shall be provided.

Section 213.2.1 of the 2010 Standards identifies what should be included in a unisex toilet room to meet the federal guidelines.

> **213.2.1 Unisex (Single-Use or Family) Toilet and Unisex Bathing Rooms.** Unisex toilet rooms shall contain not more than one lavatory, and two water closets without urinals or one water closet and one urinal. Unisex bathing rooms shall contain one shower or one shower and one bathtub, one lavatory,

and one water closet. Doors to unisex toilet rooms and unisex bathing rooms shall have privacy latches.

Cost Impact: Will not increase the cost of construction
The revision is a clarification. It should not increase or decrease costs of construction. It may reduce administration costs because it clarifies something.

EB46-15 : 410.8.10-BOECKER5781

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There was concern that the proposal adds back in the use of the term "unisex" when it has previously been removed. The list of sections listed seems to have omitted certain subsections from Section 1109.2.1 and should be further reviewed. Finally, there was concern with the requirement for 2 water closets where previously only 1 was required.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

1204.1.4 Toilet and bathing facilities. Where toilet rooms are provided, either the men's and women's toilet rooms shall be accessible or at least one unisex toilet shall be provided. The unisex toilet room shall be constructed as an accessible family or assisted-use toilet room complying with Sections 1109.2.1.2, 1109.2.1.5, 1109.2.1.6 and 1109.2.1.7 of the *International Building Code*. A unisex toilet room shall be permitted to contain two water closets.

Commenter's Reason: This proposal uses the term unisex intentionally to differentiate it from the family assist toilet room. A family assist toilet room is intended to be provided to allow adults to assist a child of a different gender or for a person to assist a spouse. They are required only in specific conditions - assembly and mercantile occupancies. As proposed, a unisex toilet is a toilet in an existing building that can be used by a person because the main toilet rooms are not accessible. It can be used in any occupancy. It does not necessarily relate to the same function that a family assist toilet does. Therefore, the term is different as well. If the concern is about a definition that can be addressed later.
There was also an expressed concern about a second water closet in the room. I believe this was misunderstood. A single water closet is "required" but a second one is "permitted." This is for two reasons. First, it harmonizes with the federal 2010 ADA Standards (Section 213.2.1) which allows two water closets. Second, it is often desireable in many places to include a children's water closet in addition to an

adult water closet. The added allowance to have the second water closet (not a requirement to add it) would accomodate that design option and match with the federal standard.

The modification to the historical building requirement in Section 1204.1.4 is to further clarify that in a historic building you can either fix existing bathrooms to be accessible or provide a unisex toilet room. This is consistent with providing allowances for historic significance in registered buildings.

EB46-15

EB50-15

Chapters 5, 6, 7, 8, 9, 10, 11, 12, 13

Proposed Change as Submitted

Proponent : Kathleen Petrie, representing Seattle Dept of Planning & Development (kathleen.petrie@seattle.gov)

2015 International Existing Building Code

Combine Chapters 5 through 12 and revise as follows:

CHAPTER 5 ~~CLASSIFICATION OF WORK~~ WORK AREA METHOD

SECTION 501 ~~GENERAL~~ CLASSIFICATION OF WORK

501.1 Scope. The provisions of this chapter ~~shall be used in conjunction with Chapters 6 through 13 and~~ shall apply to the *alteration*, *repair*, *addition* and *change of occupancy* of existing structures, including historic and moved structures, as referenced in Section 301.1.2. The work performed on an *existing building* shall be classified in accordance with this chapter.

501.1.1 Compliance with other alternatives. *Alterations*, *repairs*, *additions* and *changes of occupancy* to existing structures shall comply with the provisions of ~~Chapters 6 through 13~~ this chapter or with one of the alternatives provided in Section 301.1.

~~501.2~~ 501.1.2 Work area. The *work area*, as defined in Chapter 2, shall be identified on the construction documents.

~~SECTION 502 REPAIRS~~

~~502.1~~ 501.2 ~~Scope~~ Repairs. *Repairs,* as defined in Chapter 2, include the patching or restoration or replacement of damaged materials, elements, *equipment or fixtures* for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements.

~~502.2~~ 501.2.1 Application. *Repairs* shall comply with the provisions of ~~Chapter 6.~~ Section 502.

~~502.3~~ 501.2.2 Related work. Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to the provisions of ~~Chapter 7, 8, 9, 10 or 11~~ Sections 503, 504, 505, 506, or 507.

~~SECTION 503 ALTERATIONS- LEVEL 1~~

~~503.1~~ 501.3 ~~Scope~~ Alteration - Level 1. *No change to text.*

~~503.2~~ 501.3.1 Application. Level 1 *alterations* shall comply with the provisions of ~~Chapter 7.~~ Section 503.

~~SECTION 504 ALTERATIONS-LEVEL 2~~

~~504.1~~ 501.4 ~~Scope~~ Alteration - Level 2. Level 2 *alterations* include the

reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment.

~~504.2~~ 501.4.1 Application. Level 2 *alterations* shall comply with the provisions of ~~Chapter 7~~ Section 503 for Level 1 *alterations* as well as the provisions of ~~Chapter 8.~~ Section 504.

~~SECTION 505 ALERATIONS- LEVEL 3~~

~~505.1~~ 501.5 ~~Scope~~ Alteration-Level 3. Level 3 *alterations* apply where the work area exceeds 50 percent of the *building area*.

~~505.2~~ 501.5.1 Application. Level 3 *alterations* shall comply with the provisions of ~~Chapters 7~~ Sections 503 and ~~8~~ 504 for Level 1 and 2 *alterations*, respectively, as well as the provisions of ~~Chapter 9.~~ Section 505.

~~SECTION 506 CHANGE OF OCCUPANCY~~

~~506.1~~ 501.6 ~~Scope~~ Change of occupancy. *Change of occupancy* provisions apply where the activity is classified as a *change of occupancy* as defined in Chapter 2.

~~506.2~~ 501.6.1 Application. *Changes of occupancy* shall comply with the provisions of ~~Chapter 10.~~ Section 506.

~~SECTION 507 ADDITIONS~~

~~507.1~~ 501.7 ~~Scope~~ Additions. Provisions for *additions* shall apply where work is classified as an *addition* as defined in Chapter 2.

~~507.2~~ 501.7.1 Application. *Additions* to *existing buildings* shall comply with the provisions of ~~Chapter 11.~~ Section 507.

~~SECTION 508 HISTORIC BUIDLINGS~~

~~508.1~~ 501.8 ~~Scope~~ Historic Buildings. *Historic building* provisions shall apply to buildings classified as historic as defined in Chapter 2.

~~508.2~~ 501.8.1 Application. Except as specifically provided for in ~~Chapter 12~~ Section 508, *historic buildings* shall comply with applicable provisions of this code for the type of work being performed.

~~SECTION 509 RELOCATED BUILDINGS~~

~~509.1~~ 501.9 ~~Scope~~ Relocated Buildings. Relocated building provisions shall apply to relocated or moved buildings. Relocated buildings shall comply with the provisions of Section 509.

~~CHAPTER 6REPAIRS~~

SECTION ~~601~~502~~GENERAL~~REPAIRS

~~601.1~~ 502.1 Scope. Repairs as described in Section 502 shall comply with the requirements of this ~~chapter~~ section. Repairs to *historic buildings* need only comply with ~~Chapter 12.~~ Section 508.

~~601.2~~ 502.2 **Conformance.** The work shall not make the building less conforming than it was before the *repair* was undertaken.

~~[BS] 601.3~~ 502.3 **Flood hazard areas.** In flood hazard areas, repairs that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable,

~~**SECTION602 BUILDING ELEMENTS AND MATERIALS**~~

~~602.2~~ 502.5 **New and replacement materials.** Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for *repairs* and *alterations*, provided no *dangerous* or *unsafe* condition, as defined in Chapter 2, is created. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

~~602.3~~ 502.6 **Glazing in hazardous locations.** Replacement glazing in hazardous locations shall comply with the safety glazing requirements of the *International Building Code* or *International Residential Code* as applicable.

> **Exception:** Glass block walls, louvered windows, and jalousies repaired with like materials.

~~**SECTION603 FIRE PROTECTION**~~

~~603.1~~ 502.7 ~~General~~ **Fire protection.** *No change to text.*

~~**SECTION604 MEANS OF EGRESS**~~

~~604.1~~ 502.8 ~~General~~ **Means of egress.** *No change to text.*

~~**SECTION605 ACCESSIBILITY**~~

~~605.1~~ 502.9 ~~General~~ **Accessibility.** *No change to text.*

~~**SECTION606 STRUCTURAL**~~

~~[BS] 606.1~~ 502.10 ~~General~~ **Structural.** Structural repairs shall be in compliance with this section and Section ~~601.2~~502.10.1. Regardless of the extent of structural or nonstructural damage, *dangerous* conditions shall be eliminated. Regardless of the scope of *repair*, new structural members and connections used for *repair* or *rehabilitation* shall comply with the detailing provisions of the *International Building Code* for new buildings of similar structure, purpose and location.

~~**SECTION607 ELECTRICAL**~~

~~607.1~~ 502.11 ~~Material~~ **Electrical.** Existing electrical wiring and equipment undergoing *repair* shall be allowed to be repaired or replaced with like material.

~~**SECTION608 MECHANICAL**~~

~~608.1~~ 502.12 ~~General~~ **Mechanical.** Existing mechanical systems undergoing *repair* shall not make the building less conforming than it was before the *repair* was undertaken.

~~**SECTION609 PLUMBING**~~

~~**609.1**~~ **502.13** ~~**Materials**~~ **Plumbing.** Plumbing materials and supplies shall not be used for repairs that are prohibited in the *International Plumbing Code*.

~~**CHAPTER 7ALTERATIONS—LEVEL 1**~~

SECTION ~~701~~503~~GENERAL~~ALTERATIONS-LEVEL 1

~~**701.1**~~ **503.1 Scope.** Level 1 *alterations* as described in Section ~~503~~ 501.3 shall comply with the requirements of this ~~chapter~~ section. Level 1 *alterations* to *historic buildings* shall comply with this ~~chapter~~ section, except as modified in ~~Chapter 12.~~ Section 508.

~~**701.2**~~ **503.2 Conformance.** An *existing building* or portion thereof shall not be altered such that the building becomes less safe than its existing condition.

> **Exception:** Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the *International Building Code*.

~~**[BS] 701.3**~~ **503.3 Flood hazard areas.** In *flood hazard areas*, *alterations* that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable,

~~**SECTION702 BUILDING ELEMENTS AND MATERIALS**~~

~~**702.1**~~ **503.4 Interior wall and ceiling finishes.** All newly installed interior wall and ceiling finishes shall comply with Chapter 8 of the *International Building Code*.

~~**702.2**~~ **503.5 Interior floor finish.** New interior floor finish, including new carpeting used as an interior floor finish material, shall comply with Section 804 of the *International Building Code*.

~~**702.3**~~ **503.6 Interior trim.** All newly installed interior trim materials shall comply with Section 806 of the *International Building Code*.

~~**702.4**~~ **503.7 Window opening control devices.** In Group R-2 or R-3 buildings containing dwelling units and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, window opening control devices complying with ASTM F 2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:

1. The window is operable;
2. The window replacement includes replacement of the sash and the frame;
3. One of the following applies:
    - 3.1. In Group R-2 or R-3 buildings containing dwelling units, the top of the sill of the window opening is at a height less than 36 inches (915 mm) above the finished floor; or

3.2. In one- and two-family dwellings and town-houses regulated by the *International Residential Code*, the top sill of the window opening is at a height less than 24 inches (610 mm) above the finished floor;

4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position; and
5. The vertical distance from the top of the sill of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the minimum net clear opening area of the window unit to less than the area required by the *International Building Code*.

Exceptions:

5.1. Operable windows where the top of the sill of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F 2006.

5.2. Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F 2090.

~~**702.5**~~ **503.8 Emergency escape and rescue openings.** Where windows are required to provide emergency escape and rescue openings in Group R-2 and R-3 occupancies and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, replacement windows shall be exempt from the requirements of Sections 1030.2, 1030.3 and 1030.5 of the *International Building Code* and Sections R310.21 and R310.2.3 of the *International Residential Code* accordingly, provided the replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.

Window opening control devices complying with ASTM F 2090 shall be permitted for use on windows required to provide *emergency escape* and *rescue openings*.

~~**702.6**~~ **503.9 Materials and methods.** All new work shall comply with the materials and methods requirements in the *International Building Code*, *International Energy Conservation Code*, *International Mechanical Code*, and *International Plumbing Code*, as applicable, that specify material standards, detail of installation and connection, joints, penetrations, and continuity of any element, component, or system in the building.

~~**SECTION703 FIRE PROTECTION**~~

~~**703.1**~~ **503.10** ~~**General**~~ **Fire protection.** *Alterations* shall be done in a manner that maintains the level of fire protection provided.

~~**SECTION704 MEANS OF EGRESS**~~

~~**704.1**~~ **503.11** ~~**General**~~ **Means of egress.** *Alterations* shall be done in a manner that maintains the level of protection provided for the means of egress.

~~**SECTION705 ACCESSIBILITY**~~

~~**705.1**~~ **503.12** ~~**General**~~ **Accessibility.** A *facility* that is altered shall comply with the applicable provisions in Sections ~~705.1.1~~ 503.12.1 through ~~705.1.14~~ 503.12.14, and Chapter 11 of the *International Building Code* unless it is *technically infeasible*. Where compliance with this section is *technically infeasible*, the alteration shall provide access to the maximum extent that is technically feasible.

A *facility* that is constructed or altered to be accessible shall be maintained accessible during occupancy.

Exceptions:

1. The altered element or space is not required to be on an accessible route unless required by Section 705.2.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing *facilities*.
3. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing *facilities* undergoing less than a Level 3 *alteration*.
4. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall meet the provisions for Type B dwelling units.

~~**SECTION706 REROOFING**~~

~~**[BS] 706.1**~~ **503.13** ~~**General**~~ **Reroofing.** Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15 of the *International Building Code*.

Exception: Reroofing shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section 1507 of the *International Building Code* for roofs that provide positive roof drainage.

~~**SECTION707 STRUCTURAL**~~

~~**[BS] 707.1**~~ **503.14** ~~**General**~~ **Structural.** Where *alteration* work includes replacement of equipment that is supported by the building or where a reroofing permit is required, the provisions of this section shall apply.

~~**SECTION708 ENERGY CONSERVATION**~~

~~**708.1**~~ **503.15** ~~**Minimum requirements.**~~ **Energy Conservation.** Level 1 *alterations* to *existing buildings* or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code* or *International Residential Code*. The *alterations* shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction only.

~~**CHAPTER 8ALTERATIONS—LEVEL 2**~~

SECTION ~~801~~ 504 ~~GENERAL~~ ALTERATIONS-LEVEL 2

~~**801.1**~~ **504.1 Scope.** Level 2 *alterations* as described in Section ~~504~~ 501.4 shall comply with the requirements of this ~~chapter~~ section.

> **Exception:** Buildings in which the reconfiguration is exclusively the result of compliance with the accessibility requirements of Section ~~705.2~~ 503.12.1 shall be permitted to comply with ~~Chapter 7~~ Section 503.

~~**801.2**~~ **504.1.1** ~~**Alteration Level 1**~~ **Additional compliance.** In addition to the requirements of this ~~chapter~~ section, all work shall comply with the requirements of ~~Chapter 7.~~ Section 503.

~~**801.3**~~ **504.1.2 Compliance with International Building Code.** All new construction elements, components, systems, and spaces shall comply with the requirements of the *International Building Code*.

> **Exceptions:**
> 1. Windows may be added without requiring compliance with the light and ventilation requirements of the *International Building Code*.
> 2. Newly installed electrical equipment shall comply with the requirements of Section 808.
> 3. The length of dead-end corridors in newly constructed spaces shall only be required to comply with the provisions of Section 805.6.
> 4. The minimum ceiling height of the newly created habitable and occupiable spaces and corridors shall be 7 feet (2134 mm).

~~**SECTION802 SPECIAL USE AND OCCUPANCY**~~

~~**802.1**~~ **504.2** ~~**General**~~ **Special Use and Occupancy.** *Alteration* of buildings classified as special use and occupancy as described in the *International Building Code* shall comply with the requirements of Section 801.1 and the scoping provisions of Chapter 1 where applicable.

~~**SECTION803 BUILDING ELEMENTS AND MATERIALS**~~

~~**803.1**~~ **504.3** ~~**Scope**~~ **Building Elements and materials.** *No change to text.*

~~**SECTION804 FIRE PROTECTION**~~

~~**804.1**~~ **504.4** ~~**Scope**~~ **Fire protection.** The requirements of this section shall be limited to work areas in which Level 2 *alterations* are being performed, and where specified they shall apply throughout the floor on which the *work areas* are located or otherwise beyond the *work area*.

~~**SECTION805 MEANS OF EGRESS**~~

~~**805.1**~~ **504.5** ~~**Scope**~~ **Means of egress.** The requirements of this section shall be limited to work areas that include exits or corridors shared by more

than one tenant within the *work area* in which Level 2 *alterations* are being performed, and where specified they shall apply throughout the floor on which the *work areas* are located or otherwise beyond the *work area*.

~~**805.2**~~**504.5.1 General.** The means of egress shall comply with the requirements of this section.

Exceptions:

1. Where the work area and the means of egress serving it complies with NFPA 101.
2. Means of egress conforming to the requirements of the building code under which the building was constructed shall be considered compliant means of egress if, in the opinion of the code official, they do not constitute a distinct hazard to life.

~~**805.3 Number of exits.** The number of exits shall be in accordance with Sections 805.3.1 through 805.3.3.~~

~~**805.3.1**~~ **504.5.2 Minimum number of exits.** Every story utilized for human occupancy on which there is a *work area* that includes exits or corridors shared by more than one tenant within the *work area* shall be provided with the minimum number of exits based on the occupancy and the occupant load in accordance with the *International Building Code*. In addition, the exits shall comply with Sections 805.3.1.1 and 805.3.1.2.

~~**805.4.1 Two egress doorways required.** Work areas shall be provided with two egress doorways in accordance with the requirements of Sections 805.4.1.1 and 805.4.1.2.~~

~~**805.8**~~ **504.5.10 Exit signs.** ~~Exit signs~~ Means of egress in all work areas shall be provided with exit signs in accordance with ~~this section, as applicable.~~ the requirements of the *International Building Code*.

~~**805.8.1 Work areas.** Means of egress in all work areas shall be provided with exit signs in accordance with the requirements of the *International Building Code*.~~

~~**805.10.1 Capacity.** The required capacity of refuge areas shall be in accordance with Sections 805.10.1.1 through 805.10.1.3.~~

~~**SECTION806 ACCESSIBILITY**~~

~~**806.1**~~ **504.6** ~~**General**~~ **Accessibility.** A building, *facility*, or element that is altered shall comply with this section and Section 705.~~SECTION807 STRUCTURAL~~

~~**[BS] 807.1**~~ **504.7** ~~**General**~~ **Structural.** Structural elements and systems within buildings undergoing Level 2 *alterations* shall comply with this section.

~~**SECTION808 ELECTRICAL**~~

504.8 Electrical. Electrical equipment and wiring shall comply with section 504.8.1 through 504.8.3.7.

~~**808.1**~~**504.8.1 New installations.** All newly installed electrical equipment and wiring relating to work done in any work area shall comply with all

applicable requirements of NFPA 70 except as provided for in Section ~~808.3~~504.8.3.

~~808.2~~ 504.8.2 Existing installations. Existing wiring in all work areas in Group A-1, A-2, A-5, H and I occupancies shall be upgraded to meet the materials and methods requirements of ~~Chapter 7.~~ Section 503.

~~SECTION809 MECHANICAL~~

504.9 Mechanical. Mechanical equipment shall comply with sections 504.9 through 504.9.3.

~~SECTION810 PLUMBING~~

~~810.1~~ 504.10 Minimum plumbing fixtures. Where the occupant load of the story is increased by more than 20 percent, plumbing fixtures for the story shall be provided in quantities specified in the *International Plumbing Code* based on the increased occupant load.

~~SECTION811 ENERGY CONSERVATION~~

~~811.1~~ 504.11 Minimum energy conservation requirements. Level 2 *alterations* to *existing buildings* or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code* or *International Residential Code*. The *alterations* shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction only.

~~CHAPTER 9ALTERATIONS—LEVEL 3~~

SECTION ~~901~~ 505 ~~GENERAL~~ ALTERATIONS-LEVEL 3

~~901.1~~ 505.1 Scope. Level 3 *alterations* as described in Section ~~505~~ 501.5 shall comply with the requirements of this ~~chapter~~ section.

~~901.2~~ 505.2 Compliance. In addition to the provisions of this ~~chapter~~ section, work shall comply with all of the requirements of ~~Chapters 7~~ Sections 503 and ~~8~~ 504. The requirements of Sections 803, 804 and 805 shall apply within all *work areas* whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.

> **Exception:** Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 705.2 shall not be required to comply with this ~~chapter~~ section.

~~SECTION902 SPECIAL USE AND OCCUPANCY~~

~~902.1~~ 505.3 High-rise buildings. *No change to text.*

~~902.2~~ 505.4 Boiler and furnace equipment rooms. Boiler and furnace equipment rooms adjacent to or within Groups I-1, I-2, I-4, R-1, R-2 and R-4 occupancies shall be enclosed by 1-hour fireresistance-rated

construction.

Exceptions:

1. Steam boiler equipment operating at pressures of 15 pounds per square inch gauge (psig) (103.4 KPa) or less is not required to be enclosed.
2. Hot water boilers operating at pressures of 170 psig (1171 KPa) or less are not required to be enclosed.
3. Furnace and boiler equipment with 400,000 British thermal units (Btu) (4.22 × 108 J) per hour input rating or less is not required to be enclosed.
4. Furnace rooms protected with an automatic sprinkler system are not required to be enclosed.

~~SECTION903 BUILDING ELEMENTS AND MATERIALS~~

~~903.1~~ 505.5 Existing shafts and vertical openings. Existing stairways that are part of the means of egress shall be enclosed in accordance with Section 803.2.1 from the highest *work area* floor to, and including, the level of exit discharge and all floors below.

~~903.2~~ 505.6 Fire partitions in Group R-3. *No change to text.*

~~903.3~~ 505.7 Interior finish. Interior finish in exits serving the *work area* shall comply with Section 803.4 between the highest floor on which there is a *work area* to the floor of exit discharge.

~~SECTION904 FIRE PROTECTION~~

~~904.1~~ 505.8 Automatic sprinkler systems. *No change to text.*

~~904.2~~ 505.9 Fire alarm and detection systems. Fire alarm and detection shall be provided in accordance with Section 907 of the *International Building Code* as required for new construction.

~~SECTION905 MEANS OF EGRESS~~

~~905.1~~ 505.10 ~~General~~ Means of egress. *No change to text.*

~~SECTION906 ACCESSIBILITY~~

~~906.1~~ 505.11 ~~General~~ Accessibility. A building, *facility* or element that is altered shall comply with this section and Sections 705 and 806.

~~SECTION907 STRUCTURAL~~

~~[BS] 907.1~~ 505.12 ~~General~~ Structural. Where buildings are undergoing Level 3 *alterations* including structural *alterations*, the provisions of this section shall apply.

~~[BS] 907.4~~ 505.12.3 Existing structural elements resisting lateral loads. All existing elements of the lateral force-resisting system shall comply with this section.

Exceptions:

1. Buildings of Group R occupancy with no more than five dwelling or sleeping units used solely for residential purposes that are altered based on the conventional light-

frame construction methods of the *International Building Code* or in compliance with the provisions of the *International Residential Code*.

2. Where such *alterations* involve only the lowest story of a building and the *change of occupancy* provisions of ~~Chapter 10~~ Section 506 do not apply, only the lateral force-resisting components in and below that story need comply with this section.

~~**SECTION908 ENERGY CONSERVATION**~~

~~**908.1**~~ **505.13** ~~**Minimum requirements.**~~ **Energy conservation.** Level 3 *alterations* to *existing buildings* or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code* or *International Residential Code*. The *alterations* shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction only.

~~**CHAPTER 10CHANGE OF OCCUPANCY**~~

SECTION ~~1001~~ 506 ~~GENERAL~~ CHANGE OF OCCUPANCY

~~**1001.1**~~ **506.1 Scope.** The provisions of this ~~chapter~~ section shall apply where a *change of occupancy* occurs, as defined in Section 202.

~~**1001.2**~~ **506.2 Certificate of occupancy.** A change of occupancy or a change of occupancy within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code* shall not be made to any structure without the approval of the *code official*. A certificate of occupancy shall be issued where it has been determined that the requirements for the change of occupancy have been met**.**

~~**1001.3**~~ **506.3 Certificate of occupancy required.** A certificate of occupancy shall be issued where a *change of occupancy* occurs that results in a different occupancy classification as determined by the *International Building Code*.

~~**SECTION1002 SPECIAL USE AND OCCUPANCY**~~

~~**1002.1**~~ **506.4** ~~**Compliance with the building code.**~~ **Special use and occupancy.** Where the character or use of an *existing building* or part of an *existing building* is changed to one of the following special use or occupancy categories as defined in the *International Building Code*, the building shall comply with all of the applicable requirements of the *International Building Code*:

1. Covered and open mall buildings.
2. Atriums.
3. Motor vehicle-related occupancies.
4. Aircraft-related occupancies.
5. Motion picture projection rooms.
6. Stages and platforms.
7. Special amusement buildings.

8. Incidental use areas.
9. Hazardous materials.
10. Ambulatory care facilities.
11. Group I-2 occupancies.

~~SECTION1003 BUILDING ELEMENTS AND MATERIALS~~

~~1003.1~~ 506.5 ~~General~~ Building elements and materials. Building elements and materials in portions of buildings undergoing a *change of occupancy* classification shall comply with Section 1012.

~~SECTION1004 FIRE PROTECTION~~

~~1004.1~~ 506.6 ~~General~~ Fire protection. Fire protection requirements of Section 1012 shall apply where a building or portions thereof undergo a *change of occupancy* classification or where there is a change of occupancy within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code*.

~~SECTION1005 MEANS OF EGRESS~~

~~1005.1~~ 506.7 ~~General~~ Means of egress. Means of egress in portions of buildings undergoing a *change of occupancy* classification shall comply with Section 1012.

~~SECTION1006 ACCESSIBILITY~~

~~1006.1~~ 506.8 ~~General~~ Accessibility. Accessibility in portions of buildings undergoing a *change of occupancy* classification shall comply with Section 1012.8.

~~SECTION1007 STRUCTURAL~~

506.9 Structural. Buildings undergoing *change of occupancy* are subject to Section 506.9.

~~SECTION1008 ELECTRICAL~~

506.10 Electrical. Electrical equipment and wiring shall comply with Sections 506.10.1 through 506.10.4

~~SECTION1009 MECHANICAL~~

~~1009.1~~ 506.11 Mechanical requirements. Where the occupancy of an *existing building* or part of an *existing building* is changed such that the new occupancy is subject to different kitchen exhaust requirements or to increased mechanical ventilation requirements in accordance with the *International Mechanical Code*, the new occupancy shall comply with the respective *International Mechanical Code* provisions.

~~SECTION1010 PLUMBING~~

506.12 Plumbing. Plumbing equipment and systems shall comply with Section 506.12.

~~SECTION1011 OTHER REQUIREMENTS~~

~~1011.1~~ 506.13 Light and ventilation. Light and ventilation shall comply with the requirements of the *International Building Code* for the new occupancy.

~~SECTION1012 CHANGE OF OCCUPANCY CLASSIFICATION~~

~~1012.1~~ 506.14 ~~General~~ Change of occupancy classification. The provisions of this section shall apply to buildings or portions thereof undergoing a change of occupancy classification. This includes a change of occupancy classification within a group as well as a change of occupancy classification from one group to a different group or where there is a change of occupancy within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code*. Such buildings shall also comply with Sections 1002 through 1011. The application of requirements for the change of occupancy shall be as set forth in Sections 1012.1.1 through 1012.1.4. A *change of occupancy*, as defined in Section 202, without a corresponding change of occupancy classification shall comply with Section 1001.2.

~~1012.1.1~~ 506.14.1 Compliance with ~~Chapter 9.~~ Section 505. The requirements of ~~Chapter 9~~ Section 505 shall be applicable throughout the building for the new occupancy classification based on the separation conditions set forth in Sections 1012.1.1.1 and 1012.1.1.2.

~~**1012.2 Fire protection systems.** Fire protection systems shall be provided in accordance with Sections 1012.2.1 and 1012.2.2.~~

~~1012.2.1~~ 506.14.5 Fire sprinkler system. Where a change in occupancy classification occurs or where there is a change of occupancy within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code* that requires an automatic fire sprinkler system to be provided based on the new occupancy in accordance with Chapter 9 of the *International Building Code*, such system shall be provided throughout the area where the *change of occupancy* occurs.

~~1012.2.2~~ 506.14.6 Fire alarm and detection system. Where a change in occupancy classification occurs or where there is a change of occupancy within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code* that requires a fire alarm and detection system to be provided based on the new occupancy in accordance with Chapter 9 of the *International Building Code*, such system shall be provided throughout the area where the *change of occupancy* occurs. Existing alarm notification appliances shall be automatically activated throughout the building. Where the building is not equipped with a fire alarm system, alarm notification appliances shall be provided throughout the area where the *change of occupancy* occurs in accordance with Section 907 of the *International Building Code* as required for new construction.

~~1012.3~~ 506.14.7 Interior finish. In areas of the building undergoing the change of occupancy classification, the interior finish of walls and ceilings shall comply with the requirements of the *International Building Code* for the new occupancy classification.

~~1012.4~~ 506.14.8 Means of egress, general. Hazard categories in regard to life safety and means of egress shall be in accordance with Table ~~1012.4~~ 506.14.8.

~~**1012.5**~~ **506.14.9 Heights and areas.** Hazard categories in regard to height and area shall be in accordance with Table ~~1012.5~~ 506.14.9.

~~**1012.6**~~ **506.14.10 Exterior wall fire-resistance ratings.** Hazard categories in regard to fire-resistance ratings of exterior walls shall be in accordance with Table ~~1012.6~~ 506.14.10.

~~**1012.7**~~ **506.14.11 Enclosure of vertical shafts.** Enclosure of vertical shafts shall be in accordance with Sections ~~1012.7.1~~ 506.14.11.1 through ~~1012.7.4~~ 506.14.11.4.

~~**1012.8**~~ **506.14.12 Accessibility.** *Existing buildings* that undergo a change of group or occupancy classification shall comply with this section.

> **Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing buildings and facilities undergoing a *change of occupancy* in conjunction with less than a Level 3 *alteration*.

~~**CHAPTER 11ADDITIONS**~~

SECTION ~~1101~~ 507 ~~GENERAL~~ ADDITIONS

~~**1101.1**~~ **507.1 Scope.** An *addition* to a building or structure shall comply with the *International Codes* as adopted for new construction without requiring the *existing building* or structure to comply with any requirements of those codes or of these provisions, except as required by this ~~chapter~~ section. Where an *addition* impacts the *existing building* or structure, that portion shall comply with this code.

~~**1101.2**~~ **507.2 Creation or extension of nonconformity.** An *addition* shall not create or extend any nonconformity in the *existing building* to which the *addition* is being made with regard to accessibility, structural strength, fire safety, means of egress, or the capacity of mechanical, plumbing, or electrical systems.

~~**1101.3**~~ **507.3 Other work.** Any *repair* or *alteration* work within an *existing building* to which an *addition* is being made shall comply with the applicable requirements for the work as classified in ~~Chapter 5.~~ Section 501.

~~**SECTION1102 HEIGHTS AND AREAS**~~

~~**1102.1**~~ **507.4 Height limitations.** No *addition* shall increase the height of an *existing building* beyond that permitted under the applicable provisions of Chapter 5 of the *International Building Code* for new buildings.

~~**1102.2**~~ **507.5 Area limitations.** No *addition* shall increase the area of an *existing building* beyond that permitted under the applicable provisions of Chapter 5 of the *International Building Code* for new buildings unless fire separation as required by the *International Building Code* is provided.

> **Exception:** In-filling of floor openings and nonoccupiable appendages such as elevator and exit stairway shafts shall be permitted beyond that permitted by the *International Building Code*.

~~**1102.3**~~ **507.6 Fire protection systems.** Existing fire areas increased by the *addition* shall comply with Chapter 9 of the *International Building Code*.

~~SECTION1103 STRUCTURAL~~

~~[BS] 1103.1~~ 507.7 ~~Compliance with the International Building Code~~ Structural. *Additions* to *existing buildings* or structures are new construction and shall comply with the *International Building Code*.

[BS] ~~1103.2~~ 507.7.1 Additional gravity loads. Existing structural elements supporting any additional gravity loads as a result of additions shall comply with the *International Building Code*.

Exceptions:

1. Structural elements whose stress is not increased by more than 5 percent.
2. Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes where the *existing building* and the *addition* comply with the conventional lightframe construction methods of the *International Building Code* or the provisions of the *International Residential Code*.

~~SECTION1104 SMOKE ALARMS IN OCCUPANCY GROUPS R AND I-1~~

~~1104.1~~ 507.8 Smoke alarms in existing portions of a building. Where an *addition* is made to a building or structure of a Group R or I-1 occupancy, the *existing building* shall be provided with smoke alarms as required by Section 1103.8 of the *International Fire Code* or Section R314 of the *International Residential Code* as applicable.

~~SECTION1105 ACCESSIBILITY~~

~~1105.1~~ 507.9 ~~Minimum requirements~~ Accessibility. Accessibility provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, *primary function* shall comply with the requirements of Sections 705, 806 and 906, as applicable.

~~1105.2~~ 507.9.1 Accessible dwelling units and sleeping units. Where Group I-1, I-2, I-3, R-1, R-2 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for accessible units apply only to the quantity of spaces being added.

~~SECTION1106 ENERGY CONSERVATION~~

~~1106.1~~ 507.10 ~~Minimum requirements.~~ Energy Conservation. *Additions* to *existing buildings* shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction.

~~CHAPTER 12HISTORIC BUILDINGS~~

SECTION ~~1201~~ 508 ~~GENERAL~~ HISTORIC BUILDINGS

~~1201.1~~ 508.1 Scope. It is the intent of this ~~chapter~~ section to provide means for the preservation of *historic buildings*. Historical buildings shall comply with the provisions of this ~~chapter~~ section relating to their *repair*, *alteration*, relocation and *change of occupancy*.

~~[BS] 1201.2~~ 508.2 Report. A *historic building* undergoing *repair*,

alteration, or *change of occupancy* shall be investigated and evaluated. If it is intended that the building meet the requirements of this ~~chapter~~ section, a written report shall be prepared and filed with the *code official* by a registered design professional when such a report is necessary in the opinion of the *code official*. Such report shall be in accordance with Chapter 1 and shall identify each required safety feature that is in compliance with this ~~chapter~~ section and where compliance with other chapters of these provisions would be damaging to the contributing historic features. For buildings assigned to Seismic Design Category D, E or F, a structural evaluation describing, at a minimum, the vertical and horizontal elements of the lateral force-resisting system and any strengths or weaknesses therein shall be prepared. Additionally, the report shall describe each feature that is not in compliance with these provisions and shall demonstrate how the intent of these provisions is complied with in providing an equivalent level of safety.

~~1201.3~~ 508.3 Special occupancy exceptions—museums. When a building in Group R-3 is also used for Group A, B, or M purposes such as museum tours, exhibits, and other public assembly activities, or for museums less than 3,000 square feet (279 m^2), the *code official* may determine that the occupancy is Group B when life-safety conditions can be demonstrated in accordance with Section 1201.2. Adequate means of egress in such buildings, which may include a means of maintaining doors in an open position to permit egress, a limit on building occupancy to an occupant load permitted by the means of egress capacity, a limit on occupancy of certain areas or floors, or supervision by a person knowledgeable in the emergency exiting procedures, shall be provided.

~~[BS] 1201.4~~ 508.4 Flood hazard areas. In *flood hazard areas*, if all proposed work, including repairs, work required because of a *change of occupancy*, and *alterations*, constitutes *substantial improvement*, then the *existing building* shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.

> **Exception:** If an *historic building* will continue to be an *historic building* after the proposed work is completed, then the proposed work is not considered a *substantial improvement*. For the purposes of this exception, an *historic building* is:
>
> 1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places;
> 2. Determined by the Secretary of the U.S. Department of Interior to contribute to the historical significance of a registered historic district or a district preliminarily determined to qualify as a historic district; or
> 3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

~~SECTION1202 REPAIRS~~

~~1202.1~~ 508.5 ~~General~~ Repairs. Repairs to any portion of an *historic building* or structure shall be permitted with original or like materials and original methods of construction, subject to the provisions of this ~~chapter~~ section. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use

in buildings of similar occupancy, purpose and location.

~~**1202.2**~~ **508.5.1 Unsafe conditions.** Conditions determined by the *code official* to be *unsafe* shall be remedied. No work shall be required beyond what is required to remedy the *unsafe* conditions.

~~**SECTION1203 FIRE SAFETY**~~

~~**1203.1**~~ **508.6** ~~**Scope**~~ **Fire safety.** *Historic buildings* undergoing *alterations*, *changes of occupancy*, or that are moved shall comply with Section 1203.

~~**1203.2**~~ **508.6.1 General.** Every *historic building* that does not conform to the construction requirements specified in this code for the occupancy or use and that constitutes a distinct fire hazard as defined herein shall be provided with an approved automatic fire-extinguishing system as determined appropriate by the *code official*. However, an automatic fire-extinguishing system shall not be used to substitute for, or act as an alternative to, the required number of exits from any *facility*.

~~**SECTION1204 ALTERATIONS**~~

~~**1204.1**~~ **508.7 Accessibility requirements.** The provisions of Sections 705, 806 and 906, as applicable, shall apply to facilities designated as historic structures that undergo *alterations*, unless *technically infeasible*. Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the building or *facility*, as determined by the *code official*, the alternative requirements of Sections 1204.1.1 through 1204.1.4 for that element shall be permitted.

> **Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in historical buildings.

~~**SECTION1205 CHANGE OF OCCUPANCY**~~

~~**1205.1**~~ **508.8** ~~**General**~~ **Change of occupancy.** *Historic buildings* undergoing a *change of occupancy* shall comply with the applicable provisions of ~~Chapter 10~~ Section 506, except as specifically permitted in this ~~chapter~~ section. When ~~Chapter 10~~ Section 506 requires compliance with specific requirements of ~~Chapter 7~~ Section 503, ~~Chapter 8~~ Section 504, or ~~Chapter 9~~ Section 505 and when those requirements are subject to the exceptions in Section 1202, the same exceptions shall apply to this section.

~~**SECTION1206 STRUCTURAL**~~

~~**[BS] 1206.1**~~ **508.9** ~~**General**~~ **Structural.** *Historic buildings* shall comply with the applicable structural provisions for the work as classified in ~~Chapter 5.~~ Section 501.

> **Exception:** The *code official* shall be authorized to accept existing floors and approve operational controls that limit the live load on any such floor.

~~**CHAPTER 13RELOCATED OR MOVED BUILDINGS**~~

SECTION ~~1301~~ 509 ~~GENERAL~~ RELOCATED OR MOVED BUILDINGS

~~**1301.1**~~ **509.1 Scope.** This ~~chapter~~ section provides requirements for relocated or moved structures, including relocatable buildings as defined in Chapter 2.

~~**509.2 Application.** Relocated buildings shall comply with the provisions of Chapter 13.~~

~~**1301.2**~~ **509.2 Conformance.** The building shall be safe for human occupancy as determined by the *International Fire Code* and the *International Property Maintenance Code*. Any *repair*, *alteration*, or *change of occupancy* undertaken within the moved structure shall comply with the requirements of this code applicable to the work being performed. Any field-fabricated elements shall comply with the requirements of the *International Building Code* or the *International Residential Code* as applicable.

~~**SECTION1302 REQUIREMENTS**~~

~~**1302.1**~~ **509.3 Location on the lot.** The building shall be located on the lot in accordance with the requirements of the *International Building Code* or the *International Residential Code* as applicable.

~~**[BS] 1302.2**~~ **509.4 Foundation.** The foundation system of relocated buildings shall comply with the *International Building Code* or the *International Residential Code* as applicable.

~~**[BS] 1302.3**~~ **509.5 Wind loads.** Buildings shall comply with *International Building Code* or *International Residential Code* wind provisions as applicable.

Exceptions:

1. Detached one- and two-family dwellings and Group U occupancies where wind loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 10 percent.

~~**[BS] 1302.4**~~ **509.6 Seismic loads.** Buildings shall comply with *International Building Code* or *International Residential Code* seismic provisions at the new location as applicable.

Exceptions:

1. Structures in Seismic Design Categories A and B and detached one- and two-family dwellings in Seismic Design Categories A, B and C where the seismic loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 10 percent.

~~**[BS] 1302.5**~~ **509.7 Snow loads.** Structures shall comply with *International Building Code* or *International Residential Code* snow loads as applicable where snow loads at the new location are higher than those at the previous location.

Exception: Structural elements whose stress is not increased by more than 5 percent.

~~**[BS] 1302.6**~~ **509.8 Flood hazard areas.** If relocated or moved into a

flood hazard area, structures shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.

~~[BS] 1302.7~~ 509.9 Required inspection and repairs. *No change to text.*

Reason: This proposal reorganizes the IEBC work area method into a single chapter without making any technical changes. For a complete version of this proposal we ask that you go to: Work Area Chapter. This other document shows the intent of the proposal more clearly and accurately.
The IEBC includes 3 compliance methods--prescriptive (chapter 4), work area method (chapters 5-13), and the performance method (chapter 14). The basic premise of the IEBC is that the 3 methods are equivalent. A remodel project that uses the prescriptive method is equally as compliant as one that uses the work area method.

The format of the code doesn't reflect this equivalence. Two compliance methods are contained within a single chapter each. The work area method, however, is spread out over 9 chapters. This formatting can be misleading. It gives the appearance, for instance, that Chapter 11 applies to all additions and that Chapter 12 applies to all historic buildings, regardless of compliance method chosen for a particular project. It's misleading and confusing to designers who are trying to apply the IEBC to a building project. It's also misleading for code development. As an example, EB52-2012 was a very good code change proposal from the last code cycle that straightened out how changes of occupancy are treated in the IEBC. However, it only addressed Chapter 10 in the work area method, omitting the other 2 methods.

Each chapter of the work area method is assigned to a single section, all the sections in chapters 5-13 are renumbered, some are given different titles, and some redundant language is deleted. A few charging sections are added where the current code relies on a section title for charging. The order of the sections is not changed. The code change proposal does not show every section that would be renumbered.Sections that are not shown would be renumbered sequentially. The proposal also shows a small number of sections where we're proposing to change some language. Our intention with this proposal is that a comprehensive renumbering and correction of cross references would be done by staff and ICC's editors. An attachment to this proposal shows the details of how the renumbering could be done.

We'd like to point out that the maximum number of decimal points in section numbers is not increased in this proposal. The IEBC currently has some sections with 4 decimal points, and that is also the maximum number of decimal points in this proposal.

Cost Impact: Will not increase the cost of construction
This proposal renumbers code sections without making any technical changes.

Analysis: As stated, this proposal reorganizes several chapters of the code into a single chapter. For clarity, the code change as depicted here shows only the major sections that are moved, renumbered, or both. To view the location and renumbering of all of the sections involved, the document entitled "Work Area Chapter" can be found by clicking the link at the begining of the proponent's reason statement.

EB50-15 : CHAPTER 5-PETRIE5516

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal was disapproved as it would make the IEBC more difficult to use even though the intent was to simplify. The IEBC is already written differently than the IBC and this will cause further confusion with such a drastic change in format.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Kathleen Petrie, representing City of Seattle, Department of Planning and Development (kathleen.petrie@seattle.gov) requests Approve as Submitted.

Commenter's Reason: Per Section 301.1, one of the three methods of compliance (Prescriptive, Work Area, and Performance) must be chosen to apply toward a project in order to comply with the IEBC. The Prescriptive and Performance methods are each compiled entirely within their individual chapter; however the Work Area method is spread across 9 chapters. This format makes the code organization inconsistent and confusing for the user.
If all components of the Work Area method are moved into one chapter, the user only has to go to one location. The IEBC will then be comprised of 3 chapters which address the 3 methods, and all remaining chapters have information and requirements which apply to all methods. It may appear odd to slightly modify the format of a code, but this change makes the IEBC much more intuitive for the user.

This proposal does not make technical changes. In order to clarify for the monograph, the code change as depicted here shows only the major sections that are moved, renumbered, or both. To view the location and renumbering of all of the sections involved, please see the complete Work Area Chapter document attached.

http://media.iccsafe.org/cdpACCESS/docs/EB50.pdf

EB50-15

EB56-15
705.1.13

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

~~**705.1.13**~~ **705.1.1 Extent of application.** An *alteration* of an existing ~~element, space, or area of a~~ *facility* shall not impose a requirement for greater accessibility than that which would be required for new construction. *Alterations* shall not reduce or have the effect of reducing accessibility of a *facility* or portion of a *facility*.

Reason: The intent of the verbiage change is coordination between Section 410.3 and 705.1.13. The struck words are covered in the definition of facility. The relocation to first in the list is to place this allowance in a more prominent position, similar to Chapter 4. If accessibility is not required in new construction, you would not need to go through any of the list following.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of current requirements; therefore, there is no impact on the cost.

EB56-15 : 705.1.13-KULIK3405

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal was disapproved with concern with actions taken on the accessibility provisions in other code change proposals. More specifically, code change proposal EB33-15 moved all the accessibility provisions into Chapter 3 and the provisions of Section 705 were essentially deleted.

Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: The ICC Building Code Action Committee requests approval of this proposal as submitted. This change got confused by the committee with the reorganization of accessibility provisions made by EB 33-15. If this relocation is approved, it will facilitate the merging of the accessibility provision in EB 33. This proposal could also stand on it's own.
The intent of the verbiage change is coordination between Section 410.3 and 705.1.13. The struck words are covered in the definition of facility. The relocation to first in the list is to place this allowance in a more prominent position, similar to Chapter 4. If accessibility is not required in new construction, you would not need to go through any of the list following.

EB56-15

EB58-15
804.2.2

Proposed Change as Submitted

Proponent : Carl Baldassarra, P.E., FSFPA, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

804.2.2 Groups A, B, E, F-1, H, I, M, R-1, R-2, ~~R-4,~~ S-1 and S-2. In buildings with occupancies in Groups A, B, E, F-1, H, I, M, R-1, R-2~~, R-4~~, S-1 and S-2, work areas that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection where all of the following conditions occur:

1. The *work area* is required to be provided with automatic sprinkler protection in accordance with the *International Building Code* as applicable to new construction; and
2. The *work area* exceeds 50 percent of the floor area.

   Exception: If the building does not have sufficient municipal water supply for design of a fire sprinkler system available to the floor without installation of a new fire pump, work areas shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the *International Building Code*.

Reason: This is a single exit building, and given the limit on the number of residents in Group R-4, will not ever have more than 30, therefore, Group R-4 should not be included since the requirement would never be applicable.
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This eliminates a requirement that is never applicable.

EB58-15 : 804.2.2-BALDASSARRA4284

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There were two main concerns with this proposal. First, mixed use buildings may contain Group R-4 occupancies and the total occupant load can easily surpass 30. Secondly, the reason statement refers to residents but the requirements refer to occupants. Though the residents may never exceed 30 the number of occupants may.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Carl Baldassarra, P.E., FSFPA, representing Code Technologies Committee (CTC@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: The CTC did a review of the codes regarding where there were differences between Group R-3 and R-4 requirements. Where there was a difference, there was a review of the requirement to see if there was technical justification for the requirement. If there is no technical justification, this could be considered a violation of the Fair Housing Act since the code is asking for something more than asked for in a single family home.
Group R-4 is determined by the number of residents (not counting staff), not the occupant load, so this requirement could result in a requirement that was more restrictive in the IEBC than for new construction.
The IEBC development committee disapproved this proposal based on the possibility that a Group R-4 could have 30 occupants. Based on the occupant load table, that would be a group home with an area of large than 6,000 sq.ft. or larger all discharging through the same corridor or exit (per the base requirement in this section). In addition, the reference for occupant notification systems in the exception to Item 2 are to sections not applicable for Group R-4 facilities.

EB58-15

EB59-15

804.2.2

Proposed Change as Submitted

Proponent : Adolf Zubia, IAFC Fire & Life Safety Section, representing IAFC Fire & Life Safety Section

2015 International Existing Building Code

Revise as follows:

804.2.2 Groups A, B, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2. In buildings with occupancies in Groups A, B, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2, work areas that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection where all of the following conditions occur:

1. The *work area* is required to be provided with automatic sprinkler protection in accordance with the *International Building Code* as applicable to new construction; and
2. The *work area* exceeds 50 percent of the floor area.

   Exception: If the building does not have sufficient municipal water supply for design and installation of ~~a fire~~ an automatic sprinkler system available ~~to~~ at the ~~floor without installation of a new fire pump~~ site, work areas shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the *International Building Code*.

Reason: This proposal is submitted by Fire and Life Safety Section of the International Association of Fire Chiefs.
The intent of this code change is to address the concern that the municipal water supply must be available at the floor level where the work area is located without the installation of a fire pump. The determining factor for an automatic fire sprinkler system should be whether there is adequate water, not whether a fire pump may be required when achieving an acceptable level of public safety.

This code change revises the text so that the adequacy of a municipal water supply at the building site is the determining factor. When the work area exceeds 50% of the floor area and a fire sprinkler system would be required. The possible installation of a fire pump to supplement the water flow and pressure is not the deciding factor when providing fire safety to the work area.

The revision to this exception will allow existing buildings to comply with this section by installing a smoke detection system in lieu of the fire sprinkler system where the volume and quantity of water at the site is not adequate to fulfill the fire sprinkler system requirements.

Cost Impact: Will increase the cost of construction
This code change will increase the cost of construction. The cost of fire pump will most likely exceed the cost of a smoke detection system. However, the same fire pump should be adequate for future fire sprinkler system installations in the building. Therefore, the fire pump will be a one-time cost for the building whereas

future alterations would require the installation of additional smoke detection systems.

EB59-15 : 804.2.2-ZUBIA4330

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal was viewed as excessive for a level 2 alteration. In addition, it works against the intent of the IEBC to encourage the reuse of buildings. A particular example of this concern was a building with a large site that technically has access to a municipal water supply but would require extensive site work to gain access to the water.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Adolf Zubia, representing Fire and Life Safety Section of the International Association of Fire Chiefs requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

804.2.2 Groups A, B, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2. In buildings with occupancies in Groups A, B, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2, work areas that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection where all of the following conditions occur:

1. The *work area* is required to be provided with automatic sprinkler protection in accordance with the *International Building Code* as applicable to new construction; and
2. The *work area* exceeds 50 percent of the floor area.

> **Exception:** If the building does not have sufficient municipal water supply for design and installation of an automatic sprinkler system available ~~at~~ to the ~~site~~ floor without installation of a new fire pump, work areas shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the *International Building Code*.

904.1.2 Groups A, B, E, F-1, H, I, M, R-1, R-2, S-1 and S-2. In buildings with occupancies in Groups A, B, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2, work areas shall be provided with automatic sprinkler protection where the work area is required to be provided with automatic sprinkler

protection in accordance with the International Building Code as applicable to new construction.

> **Exception:** If the building does not have sufficient municipal water supply for design and installation of an automatic sprinkler system available at the site, work areas shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the International Building Code.

Commenter's Reason: This proposal is one of a group of three. During the Committee Action Hearing in Memphis, this proposal was Disapproved because it was felt to be too restrictive for Level 2 Alterations. At the same time, the Code Development Committee relocated a companion code change, EB61, from Chapter 8 to Chapter 9 agreeing that it is appropriate for Level 3 Alterations.
This Public Comment reinserts the current text into Section 804.2.2, so no change is made for Level 2 Alterations. The Public Comment also adds a new Section 904.1.2 to Chapter 9, which applies to Level 3 Alterations. The result is that for Level 3 Alterations, the fire sprinkler system is required as long as adequate water is available, whether or not a fire pump is needed, which is consistent with the action taken on EB61.

Section 804.2.2 Item 2 is not carried forward into the new Section 904.1.2. By definition, all Level 3 Alterations consist of a work area exceeding 50% of the building area, so Item 2 becomes unnecessary. Since only Item 1 is remaining, it is moved into the main requirement rather than being a numbered item.

The exception still applies which provides an alternate in situations where the water supply is inadequate for fire sprinkler design.

EB59-15

EB60-15
804.2.3

Proposed Change as Submitted

Proponent : Adolf Zubia, IAFC Fire & Life Safety Section, representing IAFC Fire & Life Safety Section

2015 International Existing Building Code

Revise as follows:

804.2.3 Windowless stories. Work located in a windowless story, as determined in accordance with the *International Building Code*, shall be sprinklered where the work area is required to be sprinklered under the provisions of the *International Building Code* for newly constructed buildings and the building site has a sufficient municipal water supply ~~without~~ for the design and installation of ~~a new fire pump.~~ an automatic sprinkler system.

Reason: This proposal is submitted by Fire and Life Safety Section of the International Association of Fire Chiefs.
The intent of this code change is to address the concept that the minicipal water supply must be available at the floor level where the work area is located without the installation of a fire pump. The determining factor for an automatic fire sprinkler system should be whether there is adequate water, not whether a fire pump may be required when achieving an acceptable level of public safety.

This code change revises the text so that the adequacy of a municipal water supply at the building site is the determining factor. When the work area exceeds 50% of the floor area and a fire sprinkler system would be required. The possible installation of a fire pump to supplement the water flow and pressure is not the deciding factor when providing fire safety to the work area.

Cost Impact: Will increase the cost of construction
The cost of fire pump will be added to the cost of the fire sprinkler system. However, the same fire pump should be adequate for future fire sprinkler system installations in the building, therefore, the fire pump will be a one-time cost for the building and future alterations can take advantage of the fire pump supply.

EB60-15 : 804.2.3-ZUBIA4554

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal was disapproved based upon the reason provided for disapproval on EB59-15. The proposal was seen as excessive.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Adolf Zubia, representing Fire and Life Safety

Section (azubiamia@yahoo.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

804.2.3 Windowless stories. Work located in a windowless story, as determined in accordance with the *International Building Code*, shall be sprinklered where the work area is required to be sprinklered under the provisions of the *International Building Code* for newly constructed buildings and the building site has a sufficient municipal water supply ~~for the design and~~ without installation of ~~an automatic sprinkler system~~ a new fire pump.

904.1.3 Windowless stories. Work located in a windowless story, as determined in accordance with the International Building Code, shall be sprinklered where the work area is required to be sprinklered under the provisions of the International Building Code for newly constructed buildings and the building site has a sufficient municipal water supply for the design and installation of an automatic sprinkler system.

Commenter's Reason: This proposal is one of a group of three. During the Committee Action Hearing in Memphis, this proposal was Disapproved because it was felt to be too restrictive for Level 2 Alterations. At the same time, the Code Development Committee relocated a companion code change, EB61, from Chapter 8 to Chapter 9 agreeing that it is appropriate for Level 3 Alterations.
This Public Comment reinserts the current text into Section 804.2.3, so no change is made for Level 2 Alterations. The Public Comment also adds a new Section 904.1.3 to Chapter 9, which applies to Level 3 Alterations. The result is that for Level 3 Alterations, the fire sprinkler system is required as long as adequate water is available, whether or not a fire pump is needed, which is consistent with the action taken on EB61.

By definition, Level 3 Alterations consist of a work area exceeding 50% of the building area. Therefore, this fire sprinkler requirement will only apply when more than 50% of the building is undergoing alteration, and the IBC would require the installation of fire sprinkler for new construction.

EB60-15

EB61-15
804.2.4

Proposed Change as Submitted

Proponent : Adolf Zubia, IAFC Fire & Life Safety Section, representing IAFC Fire & Life Safety Section

2015 International Existing Building Code

Revise as follows:

804.2.4 Other required automatic sprinkler systems. In buildings and areas listed in Table 903.2.11.6 of the *International Building Code*, *work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with an automatic sprinkler system under the following conditions:

1. The *work area* is required to be provided with an automatic sprinkler system in accordance with the *International Building Code* applicable to new construction; and
2. The building site has sufficient municipal water supply for design and installation of an automatic sprinkler system ~~available to the floor without installation of a new fire pump~~.

Reason: This proposal is submitted by Fire and Life Safety Section of the International Association of Fire Chiefs.
The intent of this code change is to address the concern that the minicipal water supply must be available at the floor level where the work area is located without the installation of a fire pump. The determining factor for an automatic fire sprinkler system should be whether there is adequate water at the site, not whether a fire pump may be required when achieving an acceptable level of public safety.

This code change revises the text so that the adequacy of a municipal water supply at the building site is the determining factor. When the work area exceeds 50% of the floor area and a fire sprinkler system would be required. The possible installation of a fire pump to supplement the water flow and pressure would not be the deciding factor when providing fire safety to the work area.

Cost Impact: Will not increase the cost of construction
The cost of fire pump will be added to the cost of the fire sprinkler system. However, the same fire pump should be adequate for future fire sprinkler system installations in the building, therefore, the fire pump will be a one-time cost for the building and future alterations.

EB61-15 : 804.2.4-ZUBIA4550

Public Hearing Results

Committee Action: Approved as Modified

Modification:

~~804.2.4~~904.1.4 Other required automatic sprinkler systems. *No change to text.*

Committee Reason: This proposal was seen as reasonable but only if moved to the Level 3 alterations provisions. The modification simply moved the section from Section 804.2.4 to Section 904.1.4 bringing the provisions into Level 3 alterations.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Steven Orlowski, representing Building Owners and Managers Association, International (sorlowski@boma.org) requests Disapprove.

Commenter's Reason: Both the original proposal and the modification failed to provide any technical justification or need to remove the allowance of not requiring a suppression system to be installed in an existing building, if a fire pump must be installed to supplement inadequate water flow and pressure. This might be in part since according to the latest NFPA reports, non-residential structures fires have shown a continued decrease in the number of fires reported annually. The proposal also fails to accurately assess the cost increases that will occur with this proposed code change. According to the reason statement, the proposal states that there will be no increase to the cost of construction and that the cost of the fire pump will be included in the cost of the fire suppression system. How could this code change not increase the cost of construction, when the code would now require suppression systems to be installed in buildings that previously would have not been required to install the suppression system? Not to mention that there will undoubtedly be additional cost associated with making sure that the existing fire alarm system will be able to accommodate the connection of the new waterflow alarms, tamper switches and other monitoring equipment that will be installed with the automatic sprinkler system. Also, keep in mind that most existing buildings water systems were designed and sized to meet the domestic demand and these waterlines are inadequate to accommodate the design flow required for the suppression system. This change would require the existing waterline to either be replaced or provide a supplemental waterline to serve the fire suppression system. According to a 2012 "Fire Flow Water Consumption" report prepared for the Fire Protection Research Foundation, tap fees alone can range from $15,000 to $80,000 for a 4-inch connection and that doesn't include the physical cost of installing a new waterline or replacing an existing system connection. BOMA encourages the assembly to disapprove the action by the committee and continue to allow the existing building code to take into account that when the design and installation of an automatic suppression system would require a fire pump to reach the work areas of a level II alteration (in buildings other than high-rises), that a sprinkler system will not be required.

Public Comment 2:

Proponent : Adolf Zubia, representing Fire and Life Section of the International Association of Fire Chiefs requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Existing Building Code

804.2.4 Other required automatic sprinkler systems. In buildings and areas listed in Table 903.2.11.6 of the International Building Code, work areas that have exits or corridors shared by more than one tenant or that

have exits or corridors serving an occupant load greater than 30 shall be provided with an automatic sprinkler system under the following conditions:

1. The work area is required to be provided with an automatic sprinkler system in accordance with the International Building Code applicable to new construction; and
2. The building has sufficient municipal water supply for design and installation of an automatic sprinkler system available to the floor without installation of a new fire pump.

904.1.4 Other required automatic sprinkler systems. In buildings and areas listed in Table 903.2.11.6 of the *International Building Code*, *work areas* ~~that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30~~ shall be provided with an automatic sprinkler system under the following conditions:

1. The *work area* is required to be provided with an automatic sprinkler system in accordance with the *International Building Code* applicable to new construction; and
2. The building site has sufficient municipal water supply for design and installation of an automatic sprinkler system.

Commenter's Reason: This proposal is one of a group of three. During the Committee Action Hearing in Memphis, this proposal was Approved as Modified by relocating it to Chapter 9 for Level 3 Alterations. When the relocation occurred, the requirement for fire sprinklers in Chapter 8 was lost.
This Public Comment reinserts the text in Section 804.2.4 with no change in the language found in the 2015 IEBC. Section 804.2.4 will retain the exception for elimination of the fire sprinkler requirement when a fire pump would be needed in the Level 2 Alterations.

The new text in Section 904.1.4 is also revised. This is done to correlate with Section 901.2. IEBC Section 901.2 currently reads:
901.2 Compliance. In addition to the provisions of this chapter, work shall comply with all of the requirements of Chapters 7 and 8. The requirements of Section 803, 804 and 805 shall apply within all work areas whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.
Exception: Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 705.2 shall not be required to comply with this chapter.
The second sentence in Section 901.2 already states that the requirements apply regardless of occupant load, and regardless of shared exits or shared corridors. Therefore, that phrase in Section 904.1.4 is deleted. For the Level 3 Alterations which consist of alteration of 50% or more of the floor, the issue is whether or not the site has enough water for the design of the fire sprinkler system.

The end result is that the language in IEBC Section 804.2.4 is retained, and the new Section 904.1.4 is added for Level 3 Alterations. For Level 3 Alterations, the fire sprinkler system is required as long as adequate water is available, whether or not a fire pump is needed, for Level 2 Alterations, Exception 2 would eliminate the requirement for the fire sprinkler system if a fire pump is required.

EB61-15

EB65-15
906.2

Proposed Change as Submitted

Proponent: Dominic Marinelli, representing United Spinal Association (dmarinelli@accessibility-services.com)

2015 International Existing Building Code

Revise as follows:

906.2 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered.

> ~~**Exception:** Group I-1, I-2, R-2, R-3 and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991 are not required to provide Type B dwelling or sleeping units.~~

Reason: The purpose of this code change proposal is to eliminate a conflict in the IEBC between the requirements in the Prescriptive and Work Area methods. The deletion of the exception to Section 906.2 would coordinate with Section 410.8.8. The intent is to coordinate the requirements for Type B dwelling units within the options available in the IEBC.
In the prescriptive method, Section 906.2 requirement is found in the 2nd sentence of Section 410.8.8. (The first sentence matches IEBC Section 1105.4).

410.8.8 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the International Building Code for Type B units apply only to the quantity of the spaces being added.
Where Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered and where the work area is greater than 50 percent of the aggregate area of the building, the requirements of Section 1107 of the International Building Code for Type B units apply only to the quantity of the spaces being altered.

United Spinal does not support the exception to Section 906.2, and believes it should be deleted for several reasons.

The current exception to Section 906.2 includes a March 15, 1991 as a trigger date. This was inserted as a coordination item with Fair Housing Act (FHA) requirements. However, this is not quite correct. It will be extremely difficult for code officials to determine as the first certificate of occupancy date is different than the date of First Occupancy as defined by the Fair Housing Accessibility Guidelines (i.e., the date that tenants first occupied their apartments). Adding a trigger date would require additional research by the architect or code official to determine if these code requirements were applicable or not. While the jurisdiction does hold records of certificate of occupancy, they do not information on actual occupancy of a space.

In addition, even if this was a match, including the trigger date of the FHA could significantly reduce the number of buildings where these basic adaptability features are required. Remember that these are already major alterations, not minor fixes. In instances where existing structure would prevent compliance with Type B features, permit applicants can take advantage of the technical infeasibility exception offered in the IEBC. It should be noted that Section 410.7 Exception 5 and 705.2 Exception 5 already exempts the building from improving the accessible route, so this

requirement is only for the element being altered.

The intent of the original requirement was to require adaptable Type B features in Level III alterations. This requirement will allow for basic adaptations to be made in the Type B unit in the future (but will not require accessible turning spaces, removable base cabinets, maneuvering clearance at bedroom and bathroom doors, or the installation of grab bars).

Cost Impact: Will not increase the cost of construction
This proposal as it will match current language in Section 410.8.8.

EB65-15 : 906.2-ROETHER5445

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The committee approved the proposal for consistency on the action on EB44-15. In addition, determining the certificate of occupancy for existing buildings can be problematic in smaller jurisdictions.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Dan Buuck, representing National Association of Home Builders (dbuuck@nahb.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

906.2 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered.

> **Exception:** Group I-1, I-2, R-2, R-3 and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 14, 1991 are not required to provide Type B dwelling or sleeping units.

Commenter's Reason: The purpose of the proposed exception is to align the code with the Fair Housing Act. For reference, FHA regulations state "The design requirements apply to buildings built for first occupancy after March 13, 1991, which fall under the definition of "covered multifamily dwellings."

The committee reason states a concern that this exception would be included in the prescriptive method AND the work area method, as if that was problematic. Actually this exception should apply to both instances, because that would allign both methods with the FHA and avoid confusion.

The second reason which the committee discussed was that determining when the certificate of occupancy was issued. This is not as big of a challenge as some made

it out to be. The vast majority of counties have this information available if the Department of Building Safety doesn't. Most areas of a town or city fall into certain decades of construction anyway, making it clear that a house was occupied long before (or after) the cut-off date.

Note the only modification made to the original code text was a minor adjustment to the date in order to bring it fully in line with the FHA provision.
See the similar public comment for EB 44-15.

EB65-15

EB66-15

906.3 (New)

Proposed Change as Submitted

Proponent : Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Existing Building Code

Add new text as follows:

906.3 Accessible means of egress At least one accessible means of egress shall be provided from each story of each work area to the exit discharge in accordance with the requirements of Section 1009 of the *International Building Code* unless technically infeasible.

Exceptions:

1. Historic Buildings.
2. Buildings three stories or less in height where the building does not require an automatic sprinkler system throughout in accordance with Section 903 of the *International Building Code*.

Reason: The proposal seeks to add a requirement for an accessible means of egress (AMOE) in existing buildings. Changes are being proposed only for buidlings with a Level 3 alteration. This means that at least 50 percent of the buidling is involved in an alteration, based on the descriptions in Chapter 5. The proposal also includes langauge to exempt full compliance for the AMOE where it is technically infeasible. This might be the case where the elevator would normally be required as a part of the AMOE and the hoistway shaft would need to be modified on floors beyond the work area or where such an alteration could possibly leave the building structurally unsound. Section 906.1, within the same main Section where this new code language would be located, requires the alteration to comply with Section 705. Section 705.1 already addresses the concept of technically infeasible and how it works within existing buildings.
Two exceptions are offered to this new section. The first exempts historic buildings. The complexity with which these buildings must be addressed means that it is not practical to provide an AMOE in addition to the general requirements for acessibility in an historic building. The second exception recognizes the potential costs associated with trying to create an AMOE in smaller existing buildings. If the building is small enough that automatic fire sprinklers are not required, then the creation of fire rated areas of refuge could be a considerable cost imposition. However, if the smaller buidling is requried to be protected throughout with an automatic fire sprinkler system, then areas of refuge are not required and the existing and/or new stairways can be used as part of the AMOE.

The ICC is responsible for establishing what the minimum level of safety is for new and existing buildings. The codes contain requirements for "access" for everyone, including the disabled, for both new and existing buildings. However, for existing buildings, the codes seem lacking in concern for the safety of those in the disabled community with regard to building "egress." With over 25 years of the ADA and many more years of accessibility provisions in the legacy codes, it is now time that the ICC recognize this need and include language regarding accessible means of egress for existing buildings. To do otherwise is to ignore the life safety of an entire group of the public, as well as employees, in existing buildings undergoing substantial renovation.

Cost Impact: Will increase the cost of construction

The degree of cost increase is variable. For some Level 3 alterations, the cost would be neglible if not nonexistent since a larger building will be protected throughout with an automatic fire sprinkler system, the elevator will be required to be on standby power and tactile exit signs would be required. In some instances the cost could be greater, depending on where the alteration work areas are located within the buidling. Therefore, it is not possible to offer a specific range of what the possible cost increase could be. The exceptions included in the proposal and the concept of "technically infeasible" are also options which will temper any substantial costs. Additionally, the question must be asked what the apprpriate cost for the lives that can be saved if an accessible means of egress is provided.

EB66-15 : 906.3 (New)-BOECKER5665

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal was seen as excessive and would be costly even though it was located with the level 3 alteration provisions. There was concern that the cost limits typically used for accessible route would not be applicable to accessible means of egress as written. Finally, there was concern with the reference to Section 1009 of the IBC. Section 1009 has an exception for existing buildings. Note that E34-15 addresses that particular exception.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

906.3 Accessible means of egress At least one accessible means of egress shall be provided from each story of each work area to the exit discharge in accordance with the requirements of Section 1009 of the *International Building Code* unless technically infeasible.

Alterations to provide an accessible means of egress shall provide access to the maximum extent technically feasible.

Exceptions:

1. Historic Buildings.
2. Buildings three stories or less in height where the building does not require an automatic sprinkler system throughout in accordance with Section 903 of the *International Building Code*.
3. The cost of providing the accessible means of egress through the existing building shall not be required to exceed five percent (5%) of the costs of the addition.

Commenter's Reason: The opposition to the effort to provide an accessible means

of egress in an existing building seems to rest upon expense. To address this, additional language has been proposed in this public comment to include a small percentage as the cut-off. This would have the effect of requiring something but not mandating a huge expense, even for Level 3 Alterations.
Comments during the committee hearing also included a possible conflict with Section 1009.1. However, E34-15 was approved with a modification by the committee. The original E34 proposal was to refer the reader to the IEBC. The committee chose instead to delete the exception altogether since it must be understood that existing buildings are subject to the IEBC. Therefore, there is no conflict with any text in the IBC. The IEBC is the proper place to address this issue.

If we cannot commit wholly to the concept of retrofitting one accessible means of egress, then at least let us commit to taking baby steps in this direction.

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EB66-15

EB74-15
1401.2.4

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

1401.2.4 Alterations and repairs. An *existing building* or portion thereof ~~that does not comply with the requirements of this code for new construction~~ shall not be altered or repaired in such a manner that results in the building being less safe or sanitary than such building is currently. ~~If, in the *alteration* or *repair*, the current level of safety or sanitation is to be reduced, the portion altered or repaired shall conform to the requirements of Chapters 2 through 12 and Chapters 14 through 33 of the *International Building Code*.~~

Reason: This section does not work within the IEBC as it did in the IBC. Generally we do not want an alteration or repair reducing the level of safety or sanitation. As currently written it says "this code" when in fact it was focused upon the IBC. Reference is not needed back to the IBC in this case. The last sentence is again sending the user of the code back to the IBC when we told them already that they could not reduce their level of safety or sanitation. As modified it will simply provide a baseline that the user of this chapter must meet. These revisions are needed to correlate with the 2015 IBC that deleted Chapter 34 on existing buildings. This is considered a clarification of the application of the IEBC as it applies to alterations and repairs and will not change anything that is now required by the I-Codes.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as this revision is only a clarification of the current provisions.

EB74-15 : 1401.2.4-KULIK4903

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The main concern with this proposal was the deletion of the last sentence. In some cases existing buildings may have more conservative construction features than new buildings. Eliminating this sentence would eliminate

the ability to simply comply with the IBC.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

1401.2.4 Alterations and repairs. An *existing building* or portion thereof shall not be altered or repaired in such a manner that results in the building being less safe or sanitary than such building is currently.

> **Exception:** Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the International Building Code.

Commenter's Reason: The initial proposal was meant only as a clarification. Concerns were raised that by losing the last sentence the ability to allow a reduction that would meet the current building code would be lost. Therefore, the concept was borrowed from Section 701.2 which allows reductions if compliance with the IBC is achieved.

> **701.2 Conformance**. An existing building or portion thereof shall not be altered such that the building becomes less safe than its existing condition.
>
> **Exception:** Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the International Building Code.

EB74-15

EB86-15

1401.6.17, Table 1401.6.17, 1401.6.17.1

Proposed Change as Submitted

Proponent : Jeff Hugo, representing National Fire Sprinkler Association (hugo@nfsa.org)

2015 International Existing Building Code

Revise as follows:

1401.6.17 Automatic sprinklers. Evaluate the ability to suppress or control a fire based on the installation of an automatic sprinkler system in accordance with Section ~~903.3.1.1~~ 903.3.1 of the *International Building Code*. "Required sprinklers" shall be based on the requirements of ~~this code.~~ the *International Building Code.* Under the categories and occupancies in Table 1401.6.17, determine the appropriate value and enter that value into Table 1401.7 under Safety Parameter 1401.6.17, Automatic Sprinklers, for fire safety, means of egress divided by 2, and general safety. High-rise buildings defined in Chapter 2 of the *International Building Code* that undergo a *change of occupancy* to Group R shall be equipped throughout with an automatic sprinkler system in accordance with Section 403 of the *International Building Code* and Chapter 9 of the *International Building Code*. Facilities in Group I-2 occupancies meeting Category a, b, c or f shall be considered to fail the evaluation.

TABLE 1401.6.17
SPRINKLER SYSTEM VALUES

OCCUPANCY	CATEGORIES					
	a[a]	**b**[a]	**c**	**d**	**e**	**f**
A-1, A-3, F, M, R, S-1	-6	-3	0	~~2~~3	~~4~~6	6
A-2	-4	-2	0	~~1~~2	~~2~~4	4
A-4, B, E, S-2	-12	-6	0	~~3~~6	~~6~~12	12
I-2	NP	NP	NP	8	10	NP

NP = not permitted.

a. These options cannot be taken if Category a in Section 1401.6.18 is used.

1401.6.17.1 Categories. The categories for automatic sprinkler system protection are:

1. Category a—Sprinklers are required throughout the building; sprinkler protection is not provided. ~~or the sprinkler system desing is not adequate for the hazard protected in accordance with Section 903 of the *International Building Code*.~~
2. Category b—Sprinklers are required in *fire area*s or compartments ~~a portion of the building~~; sprinkler protection is not provided in *fire area*s or compartments, or the sprinkler system design is not adequate for the hazard protected in accordance with Section 903 of the *International Building Code*.
3. Category c—Sprinklers are not required; none are provided.
4. Category d—Sprinklers are required in ~~a portion of the building~~ *fire area*s or compartments; sprinklers are provided in *fire area*s or compartments~~such portion; the system is one that complied with the code at the time of installation and is maintained and supervised in accordance with Section 903 of the *International Building Code*.~~
5. Category e—Sprinklers are required throughout; sprinklers are provided throughout in accordance with Chapter 9 of the *International Building Code*.
6. Category f—Sprinklers are not required throughout; sprinklers are provided throughout in accordance with Chapter 9 of the *International Building Code*.

Reason: History and Summary

Fire sprinkler values was added to the BOCA version of Fire Safety Evaluation System (FSES) in the 1990 edition by code change number B270-89 (attached). This proposal created a table with two categories with the occupancy rows arranged the same as in the current IEBC. The first category (a) gave no credit for buildings without a sprinkler system and no credit for partial systems. The second category (b) provided values for fully sprinklered buildings according to the BOCA fire protection chapter (Article 10) which referenced NFPA 13 and NFPA 13R. Fully sprinklered buildings were given 4 points (A-2), 6 points (A-1, A-3, F, M, R, S-1) or 12 points (A-4, E, B, S-2). The values in the second category were established by other FSES processes (NFPA and NYC). These values were justified by the proponent as being equal to automatic alarm values.

In the 1996 BOCA, code change number B213-95 (attached), increased the two category value table to the current IEBC six category value table. The values in each of the six categories have been unchanged since this edition, with the exception of adding values for I-2 occupancies for the 2015 edition. The higher category values appear similar as the above version in 1990, with lower values in lower categories, however, this proposal discusses that the arrangement of the values do not do a fully sprinklered building justice as originally intended in the 1990 version.

Each proposed change is explained in detail below, however, to summarize, there was a significant and fundamental change on how these values were applied in the 1996 BOCA code. The 1990 values were for fully sprinklered buildings, but the 1996 values demoted these values for fully sprinklered buildings required to be sprinklered by the code (Category e). The full values, as intended by the 1990 text, was only given to buildings that were fully sprinklered voluntarily (Category f). The practice of constructing buildings as unsprinklered, (without any trade-offs) then adding a sprinkler system is virtually non-existent. The values in Category e and f of the 1996 BOCA to the 2015 IEBC are unjust and are not equal to the 1990 proponents' intent. This proposal adjusts the table accordingly.

Proposed Changes in Text

"...or control..."

This change correctly addresses automatic fire sprinkler systems for the majority of installations. Fire sprinkler systems designed according to NFPA 13, NFPA 13R and NFPA 13D are designed to control fires. There are a few instances in the NFPA 13 standard where the fire sprinkler is designed to suppress fires, such as in storage occupancies. It is appropriate to have "control" more than suppression in the code text, but this proposal leaves suppression in to accommodate the suppression in storage occupancies.

" ...Section 903.3.1.~~1~~..."
This change removes the limitation of the values to be used just on a NFPA 13 system. The values cannot be limited to just NFPA 13 systems. The intent of the proposal that expanded the values for 1996 BOCA did not prohibit NFPA 13R systems (B213-95), likewise, the values table has occupancies that are permitted to use NFPA 13R (R-1, R-2) and NFPA 13D (R-3, R-4) systems. When a building is sprinklered according to any of the sprinkler standards, they are considered fully sprinklered.

" ...the *International Building Code*~~this code~~..."
When this section was located in the IBC it also stated "this code". This section wasn't revised when it moved from the IBC to the IEBC. Every other section in Chapter 14 of the IEBC that has similar language refers to the IBC. For example, IEBC Section 1401.6.18 refers the requirements back to the IBC.

" Category a - Sprinklers are required throughout the building; sprinkler protection is not provided.~~or the sprinkler system design is not adequate for the hazard protected in accordance with Section 903 of the International Building Code.~~".
This change updates and clarifies where sprinklers are throughout to make the user aware of the extent of sprinklers protection. The latter portion of the text is removed. The value assigned to this is extreme and is redundant with Category b. Having no sprinklers and an under-designed system is not equal. Both are detrimental, but one has no protection, the other has some form of protection. The penalty for an under-designed system should a Category b and keep the unsprinklered building as the highest penalty.

"Category b - Sprinklers are required in *fire areas* or compartments ~~a portion of the building~~; sprinkler protection is not provided in *fire areas* or compartments..."
This change provides a negative value when a fire area or compartment that is required to have sprinklers, but doesn't. Fire areas are defined in the IBC and "compartments" are used and qualified in Section 1401.6.3. These terms are concrete and have definite passive fire protection boundaries than the subjective term "portion". By using fire area and compartments, the code official and the user can be clear where sprinklers are supposed to be installed.

"Category d - Sprinklers are required in *fire areas* or compartments ~~a portion of the building~~; sprinklers are provided in *fire areas* or compartments.~~such porton;the system is one that complied with the code at the time of installation and is maintained and supervised in accordance with Section 903 of the *International Building Code*.~~"

This change assigns the partial system for a fire area with a value. It also removes the undefined term "portion". Fire areas are defined in the IBC and "compartments" are used and qualified in Section 1401.6.3. These terms are concrete and have definite passive fire protection boundaries than the subjective term "portion" which will have differing boundaries by every user for every building that is evaluated. By using fire area and compartments, the code official and the user can be clear where sprinklers are supposed to be installed.

There are some occupancies, such as A-1, A-2, A-3 and A-4, that are only required to have sprinklers in the fire area. Other fire areas may not need fire sprinklers. This change would provide buildings with sprinklered fire areas some credit. The value would not apply to a partial systems for incidental uses or other partial or limited-area system installation. The value would only be applied when the fire areas that are supposed to have sprinklers are installed according to the appropriate standard, or when the compartment is sprinklered.

This proposal also removes the value that is assigned for the maintenance of the

system according to the edition of the standard when it was installed. The IBC and IFC along with NFPA 13 require the sprinkler system to be maintained according to NFPA 25. This may not have been clear when the proposal was drafted for the 1996 BOCA. NFPA 25 was a new standard in 1992 and while it was referenced by the BOCA Fire Prevention Code, the scope may not have been fully understood and enforcement was difficult if the BOCA Fire Prevention Code was not specifically adopted. Furthermore, a system that is currently maintained according to the NFPA 25 (as referenced by current IFC) should receive points in a higher category.

Changes to the Table

Values in Category d
The changes to Category d provide one half of the value for a (proposed) fully sprinklered building. These values would be applied when the required fire areas are sprinklered. As explained above, the term fire area is defined and have definite fire rated boundaries within the building.

Values in Category e

The changes to the values in Category e show a fully sprinklered building with the maximum value as it is in Category f. It should make no difference that a sprinkler system was required or voluntarily installed. A fully sprinklered building is installed with the same installation standards whether it was a required system or a non-required system. There are other values in Chapter 14 of the IEBC that gives "bonus" points when the code was exceeded. However, a fully sprinklered building can be "upgraded" beyond the minimum standard, but that is hard to quantify and justify when additional points are awarded. When a fire rating is increased it is easier to identify and view the upgrade.

When the sprinkler values were introduced in the 1990 BOCA they were for fully sprinklered buildings. There was no "bonus" points. The reduced values in the current IEBC Category e penalizes buildings that have required sprinkler systems.

Cost Impact: Will not increase the cost of construction
Updating values may descrease the need to upgrade other construction features to meet the FSES.

EB86-15 : 1401.6.17-HUGO4760

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal was disapproved with concern regarding the broadening of the application of these criteria to both NFPA 13R and 13D. In addition, the committee felt it was inappropriate for the scores for category e and f to be the same. One is for required systems (e) and the other if for non required systems (f). Generally, there was concern as to how these revisions will affect the mandatory safety scores.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org)

requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

TABLE 1401.6.17
SPRINKLER SYSTEM VALUES

OCCUPANCY	CATEGORIES					
	a[a]	b[a]	c	d	e	f
A-1, A-3, F, M, R, S-1	-6	-3	0	2~~-4~~	4~~6~~	6
A-2	-4	-2	0	1~~2~~	2~~-4~~	4
A-4, B, E, S-2	-12	-6	0	3~~6~~	6~~12~~	12
I-2	NP	NP	NP	8	10	NP

NP = not permitted.

a. These options cannot be taken if Category a in Section 1401.6.18 is used.

Commenter's Reason: This PC changes the table back to the original values. The remainder of the proposal is as originally proposed.
The committee vote was close on this proposal (7-6). One of their concerns was that this proposal opens up to NFPA 13R and NFPA 13D. NFPA 13R and NFPA 13D are systems that permitted to be used by the IBC for new and existing construction. NFPA 13R is specifically referenced by the IEBC and is permitted for residential occupancies up to four stories and sixty feet in height. NFPA 13D is permitted by the IBC for R-3, R-4 Condition 1, and care facilities. Section 1401.1 of the IEBC states that Sections 1401.2.1 through 1401.2.5 applies to all R occupancies. If this is the case, then the sprinkler systems that are permitted for new and existing construction should be included.

This public comment removes the increases and modifications to the values in the table. The entire set of values, throughout Chapter 14, need to be updated and all of the values need to be adjusted across the board. As stated in the original reason statement, many of the values are 20-plus years old and do not consider many aspects and building practices that have evolved over the past 30 years.

The committee vote was 7-6 and the discussion on the changes to the text to current text was unopposed by the committee and those in attendance.

EB86-15

EB88-15

Table 1401.6.17

Proposed Change as Submitted

Proponent : Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org)

2015 International Existing Building Code

Revise as follows:

TABLE 1401.6.17
SPRINKLER SYSTEM VALUES

OCCUPANCY	CATEGORIES					
	a[a]	b[a]	c	d	e[b]	f[b]
A-1, A-3, F, M, R, S-1	-6	-3	0	2	4	6
A-2	-4	-2	0	1	2	4
A-4, B, E, S-2	-12	-6	0	3	6	12
I-2	NP	NP	NP	8	10	NP

NP = not permitted.

a. These options cannot be taken if Category a in Section 1401.6.18 is used.

b. Increase values by 2 when fast or quick response sprinklers are used throughout or 3 when these sprinklers are used as part of an early suppression design method.

Reason: This proposal increases the values in category e and f by two when quick response or fast response sprinklers are used. This section has not been updated for almost 20 years. Since then use of quick response sprinklers has increased and is required by the IBC and NFPA 13. This technology has reduced the sprinkler response time dramatically but may not have been as widely known or used today as it was when these sections were introduced over 25 years ago in the BOCA code. Increasing the values for these type of sprinklers is common and consistent with the other FSES used, such as NFPA 101A.
Fast response sprinklers are defined in NFPA 13. Sprinklers that are considered fast have a quick response thermal element. These sprinklers are as follows: Quick Response (QR), Extended Coverage Quick Response (QREC), Residential, Early Suppression Quick Response (ESFR), and Quick Response Early Suppression (QRES) sprinklers.

This proposal also proposes to increase the value by three when quick response or fast response sprinklers are used in a early suppression design method. Many

storage buildings today utilize fire sprinkler designs that use the ESFR (Early Suppression Fast Response) or QRES (Quick Response Early Suppression) sprinkler to extinguish building fires. These arrangements use large amounts of water to put out the fire rapidly.

The early suppression design method is also used in performance based designs that use fast response sprinklers to suppress fires rather than control fires. This option would be available to users who are using fire modeling and performance codes, such as ICC's Performance Code for Buildings and Facilities. In general, the area consumed by the fire is smaller in a suppression scenario than in a control mode scenario. Of course, both options apply water to a fire automatically, limiting the area of the fire.

Cost Impact: Will not increase the cost of construction
The cost of the fast or quick response sprinklers may cost more in the intial phase of construction but reduces the need for other construction features.

EB88-15 : T1401.6.17-HUGO5104

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The concept of providing credit for the use of ESFR sprinkler systems was appropriate for non required systems but not for required systems. In terms of quick response sprinklers, there was concern that these are already required in residential occupancies and it did not seem appropriate to provide additional credit through reference to this footnote.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jeff Hugo, National Fire sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Existing Building Code

TABLE 1401.6.17
SPRINKLER SYSTEM VALUES

OCCUPANCY	CATEGORIES					
	a[a]	b[a]	c	d	e[b]	f[b]
A-1, A-3, F, M, R, S-1	-6	-3	0	2	4	6

A-2	-4	-2	0	1	2	4
A-4, B, E, S-2	-12	-6	0	3	6	12
I-2	NP	NP	NP	8	10	NP

NP = not permitted.

a. — These options cannot be taken if Category a in Section 1401.6.18 is used.

b. Increase values by 2 when ~~fast or quick response sprinklers are used throughout or 3 when~~ these sprinklers are used as part of an early suppression design method~~.~~

Commenter's Reason: This public comment changes the original proposal to match the desire of the committee. The committee directed that the extra points in the values would only apply to Column F. The committee also wanted to limit the value increase by two for the early suppression fast response design method.

EB88-15

EB93-15

[BE] 1508.1

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

[BE] 1508.1 Construction sites. Structures, sites, and equipment directly associated with the actual process of construction, including but not limited to scaffolding, bridging, material hoists, material storage, or construction trailers are not required to ~~be accessible.~~ comply with Chapter 11 of the IBC.

Reason: The intent is to coordinate IEBC Section 1508.1 with the new language in IBC Section 1103.2.5.
IBC Section 1103.2.5 reads as follows:

1103.2.5 Construction sites. Structures, sites and equipment directly associated with the actual processes of construction including, but not limited to, scaffolding, bridging, materials hoists, materials storage or construction trailers are not required to comply with this chapter.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of current requirements; therefore, there is no impact on the cost.

EB93-15 : [BE] 1508.1-KULIK3356

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The reference back to Chapter 11 is not needed.

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: The ICC Building Code Action Committee requests approval of this proposal as submitted. The code committee felt that a pointer sending someone to the IBC to find out they did not have to do something was not needed. However, it should be noted that this is not a pointer, but an exception. We still believe the new language is more precise and clear. The intent is to coordinate IEBC Section 1508.1 with the new language in IBC Section 1103.2.5. IBC Section 1103.2.5 reads as follows:

> 1103.2.5 Construction sites. Structures, sites and equipment directly associated with the actual processes of construction including, but not limited to, scaffolding, bridging, materials hoists, materials storage or construction trailers are not required to comply with this chapter.

EB93-15

E2-15

202(New), 1003.4, 1011.5.4, 1011.7.1, 1012.7.1, 1029.11.1, Chapter 35; (IFC[BE] 1003.4, 1011.5.4, 1011.7.1, 1012.7.1, 1029.11.1)

Proposed Change as Submitted

Proponent : Russell Kendzior, The National Floor Safety Institute (NFSI), representing National Floor Safety Institute (russk@nfsi.org)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

HIGH TRACTION. The physical property of a floor or walkway surface that is designed to mitigate slipping during normal human ambulation by providing a reasonably sufficient level of available contact friction.

Revise as follows:

1003.4 Floor surface. Walking surfaces of the *means of egress* shall have a ~~slip-resistant~~ high-traction surface ~~and be~~ that is securely attached. Walking surfaces that are subject to wet conditions shall have a high-traction surface that complies with ANSI/NFSI B101.1 or ANSI/NFSI B101.3.

1011.5.4.1 Nonuniform height risers. Where the bottom or top riser adjoins a sloping *public way*, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8-percent slope) of *stair* width. The *nosings* or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other *nosing* marking provided on the *stair flight*. The distinctive marking stripe shall be visible in descent of the *stair* and shall have a ~~slip-resistant~~*high-traction* surface. Marking stripes shall have a width of not less than 1 inch (25 mm) but not more than 2 inches (51 mm).

1011.7.1 Stairway walking surface. The walking surface of treads and landings of a *stairway* shall not be sloped steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. *Stairway* treads and landings shall have a solid surface. ~~Finish floor~~ Walking surfaces shall ~~be~~ have a *high-traction* surface that is securely attached.

Exceptions:

1. Openings in *stair* walking surfaces shall be a size that does not permit the passage of $^{1}/_{2}$-inch-diameter (12.7 mm) sphere. Elongated openings shall be placed so that the long dimension is perpendicular to the direction of travel.
2. In Group F, H and S occupancies, other than areas of parking structures accessible to the public, openings in

treads and landings shall not be prohibited provided a sphere with a diameter of $1^1/_8$ inches (29 mm) cannot pass through the opening.

1012.7.1 Ramp surface. The walking surface of *ramps* shall ~~be of slip-resistant materials~~ have a *high-traction* surface that ~~are~~ is securely attached.

1029.11.1 Walking surface. The surface of *aisles*, stepped *aisles* and ramped *aisles* shall ~~be of slip-resistant materials~~ have a *high-traction* surface that ~~are~~ is securely attached. The surface for stepped *aisles* shall comply with Section 1011.7.1.

Add new standard(s) as follows:

ANSI/NFSI B101.1-2009 "Test Method for Measuring Wet SCOF (static coefficient of friction) of Common Hard-Surface Floor Materials"

ANSI/NFSI B101.3-2012 "Test Method for Measuring Wet DCOF (dynamic coefficient of friction) of Common Hard-Surface Floor Materials"

Reason: Ambiguous Terminology

The term "Slip Resistant" is currently used in section 1003.4 "Floor Surface" as well as Section 1012.7.1 "Ramp surface" and applies to the list of sections named within this proposal to describe a safe walking surface however the term is not defined in the 2012 International Building Code nor is it defined by way of any nationally recognized industry consensus test standard (ie: ASTM, ANSI). Although commonly used in the past, the term Slip-Resistant is an ambiguous adjective which implies a safety benefit but is not defined by way of a measurable industry consensus test method and therefore is meaningless to those who seek to make their walkways safe (ie: property owners, architects, etc.). In short, because of the failure to properly define the term all walkways are by default perceived by property owners, architects, and end-users, etc., to be "Slip Resistant" even if they may not safe for pedestrian foot traffic.

The phrase Slip Resistant should, be omitted from all the relevant sections of the 2012 International Building Code and replaced with the term "High-Traction" which is defined by way of two nationally recognized consensus test methods/standards specifically the ANSI/NFSI B101.1-2009 "Test Method for Measuring Wet SCOF of Common Hard-Surface Floor Materials" and the ANSI/NFSI B101.3-2012 "Test Method for Measuring Wet DCOF of Common Hard-Surface Floor Materials" standards (attached). Both of these industry consensus test methods/standards speak directly to the subject of walkway safety and directly impacts the safety of all pedestrians especially those with disabilities. Therefore replacing the undefined term Slip Resistant with the well defined term High-Traction will better serve the general publics need for safe walking surfaces.

Furthermore, the term High-Traction should be added to Section 202 "Definitions" and should apply to the referenced sections included in this proposal. The definition of the term High-Traction should be listed in Section 202 and defined as it is defined in the ANSI/NFSI B101.1-2009 standard as: "The physical property of a floor or walkway surface that is designed to mitigate slipping during normal human ambulation by providing a reasonably sufficient level of available contact friction." Finally, a reference to the ANSI/NFSI B101.1-200 standard should be cited in Section 202 of the 2015 International Building Code.

Reference to ANSI A137.1

Historically the International Building Code has referenced the ANSI A137.1 "Specifications for Ceramic Tile" standard, which the most recent version cited, is that of the 2008 version. In 2012 the ANSI A137.1 standard was revised whereby they abandoned their long standing reference to the ASTM C-1028 dry SCOF test

method and now reference an industry specific, wet DCOF test method, one which was created by and for the ceramic tile industry. Subsequently, the ASTM C-1028 standard was withdrawn by the ASTM and is no longer a recognized test method.

Historically the subject of how to measure a floors slip resistance has been hotly debated to which there were two camps of thought, one, which supported SCOF "drag sled" testing as described in ASTM D-2047 (polishes) and ASTM C-1028 (withdrawn) standards and the other camp, which supported a dynamic version or DCOF testing. In 2006 the ANSI B101 committee on slip, trip and fall prevention was established and has since published five slip and fall prevention standards including an SCOF (ANSI/NFSI B101.1-2009) and a DCOF (ANSI/NFSI B101.3-2012) test method, both of which are not specific to any type of flooring material or industry but rather can be used on any type of hard surface walkway both in the laboratory (manufacturing) as well as in-situ.

NFSI vs. TCNA

The NFSI is a 501(c)-3 non-for-profit organization and is an ANSI Standard Developing Organization (SDO) which in 2006 established the ANSI B101 committee on "slip, trip and fall prevention." The NFSI's mission is "to aid in the prevention of slips, trips, and falls through education, research, and standards development." The Tile Council of North America (TCNA) which serves as the SDO of the A108 committee which authored the A137.1 standard is a for-profit industry trade association which according to their website "... was created with the sole purpose of expanding the ceramic tile market in the United States." In-short, the ANSI B101 committee author's walkway safety standards while the ANSI A108 committee authors ceramic tile manufacturing specifications.

ANSI A137.1-2012

According to Section 1.0 "Purpose" of the ANSI A137.1-2012 standard states that: "these specifications serve as a reference standard for buyers and specifiers of Standard Grade and Second Grade ceramic tile, Decorative Tile, and Specialty Tile. These specifications are also a guide to producers in maintaining quality control of the manufacture of such ceramic tile" therefore the standard is as it states "a guide to producers in maintaining quality control" of un-installed tile and does not purport to describe any safety specifically slip and fall prevention capabilities of ceramic tile.

Section 2.0 "Scope" of the ANSI A137.1-2012 further states that: "These Specifications describe the normally available sizes and shapes of ceramic tile: the physical properties of Standard Grade and Second Grade Ceramic Tile, Decorative Tile and Specialty Tile; the basis for acceptance and methods of testing prior to installation; the marking and certification of ceramic tile; and the definitions of terms employed in these specifications." The ANSI A137.1 standard only applies to un-installed ceramic tile and not installed floors. Uninstalled ceramic tile is not considered a floor until it's installed. By way of example, a wooden 2"X4" is simply that, a piece of wood measuring 2"X4" in size. Although commonly used to construct walls, a wooden 2"X4" is not a wall until it is installed as such. The same is true for uninstalled ceramic tile. It becomes a floor after its installed to which the A137.1 standard does not govern the characteristics of installed tile.

Safety managers, risk managers, property/facility managers, and all other parties whose responsibility is to insure the safety of their walkways are only concerned with installed floors and not uninstalled materials and require an in-situ test method to insure compliance. Therefore, because of the limitations of the ANSI A137.1 standard as a laboratory lab test for quality control purposes only that it should no longer be referenced within the International Building Code.

Furthermore, it is estimated that only 12.9% of all installed floorcoverings are ceramic tile and 1.1% is stone. In-fact, according to the most recent research*, more vinyl sheet & floor tile is in use (16% of the total square footage sold), than that of ceramic tile, stone and laminate flooring combined! The A137.1-2012 standard only applies to ceramic tile and is not applicable to the remaining 87% of hard surface flooring materials used by property owners.

In contrast, the scope statements of the ANSI/NFSI B101.1 and B101.3 standards provide specific test methods and defined traction ranges for both laboratory (un-installed) as well as in-situ (installed) flooring materials and applies to all types of

hard surface flooring materials.

Financial Burden to Industry

Although the ANSI A137.1 standard has been cited in previous versions of the International Building Code, with the recent development of the ANSI B101 walkway safety standards which have been widely embraced by the flooring, floor care, legal and insurance industries. Given the broad use and industry acceptance of the ANSI B101 standards we are requesting that any reference to the A137.1 standard as it relates to the measurement of slip resistance be removed and replaced with references to the ANSI B101.1-2009 and ANSI B101-3-2012 standards respectively.

Since the publication of the ANSI/NFSI B101.1 standard in 2009, hundreds of flooring manufacturers products have voluntarily submitted to the NFSI for certification. A wide range of industries have adopted the ANSI/NFSI B101 standards and have come to rely upon the NFSI to perform independent slip resistance testing, all of which are done in compliance with the ANSI/NFSI B101.1 or B101.3 standards.

One example is that of the polished concrete industry who shortly after the publication of the ANSI/NFSI B101.3 standard publicly announced their support. The polished concrete industry, through its representative trade association the Concrete Polishing Association of America (CPAA) openly adopted the ANSI/NFSI B101.3 standard (see enclosed CPAA press release) to which the NFSI has been awarding certificates of compliance (NFSI Certification) to manufacturers of polished concrete systems for many years. The economic burden to the floorcovering and floor care industries to abandon the tried and true published ANSI B101 walkway safety standards would be financially burdensome.

Bibliography: 2013 "Statistical Report 13" as published in Floor Covering Weekly magazine, July 21, 2014

Cost Impact: Will not increase the cost of construction
There is no cost impact to this proposal since manufacturers of flooring materials are and have been measuring their products safety performance to the ANSI/NFSI B101.1-2005 and ANSI/NFSI B101.3-2012 standards for years.

Analysis: A review of the standard proposed for inclusion in the code, ANSI/NFSI B101.1-2009 and ANSI/NFSI B101.3-2012, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

E2-15 : 1003.4-KENDZIOR4911

Public Hearing Results

The edition of the ANSI/NFSI B101.1 referenced in the change was 2005, however, the 2009 edition was submitted for committee and staff review.

Committee Action: Disapproved

Committee Reason: The fact that this proposal was not limited to one type of flooring material is good. However, the definition of high traction does not contain any numerical value and has subjective language such as "reasonably sufficient'. There would be confusion as to which floors are subject to wet conditions. There was testimony that some common flooring materials might not be able to meet the proposed standard. There will be an increase in construction cost because floor materials will need to be tested to this new standard.

There is question for maintenance of high traction materials in existing buildings over time – especially when floor products are used for cleaning or waxing.

The proposals could conflict with the intent of provisions for slip resistant in the accessibility provisions in the ICC A117.1 and the American's with Disabilities Act. Too much high traction might make some surfaces difficult to negotiate by persons with mobility issues.

Assembly Action : None

Analysis. For staff analysis of the content of ANSI/NFSI B101.1 relative to CP#28, Section 3.6, please visit: http://www.iccsafe.org/wp-content/uploads/2015-Proposed-Standards-Group-A-Final.pdf.

The edition of the ANSI/NFSI B101.1 referenced in the change was 2005, however, the 2009 edition was submitted for committee and staff review.

Individual Consideration Agenda

Public Comment 1:

Proponent : Russell Kendzior, representing National Floor Safety Institute (russk@nfsi.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

HIGH TRACTION. ~~The physical property of a flooror walkway surface that is designed to mitigate slipping during normal human ambulation by providing a reasonably sufficient level of available contact friction.~~ Walking surfaces tested per the ANSI/NFSI B101.1 and ANSI/NFSI B101.3 standards with the following coefficients offriction:

1. A wet Static Coefficient of Friction (SCOF) of 0.60 orgreater,
2. A wet Dynamic Coefficient of Friction (DCOF) of 0.42 or greater for surfaces with less than a1:20 incline.
3. A wet Dynamic Coefficient of Friction (DCOF) of 0.45 or greater for inclines of 1:20 or greater.

SECTION 202 DEFINITIONS

SLIP RESISTANT Walking surfaces tested per the ANSI/NFSI B101.1 and ANSI/NFSI B101.3 standards with the following coefficients of friction:

1. A wet Static Coefficient of Friction (SCOF) of 0.40 or greater,
2. A wet Dynamic Coefficient of Friction (DCOF) of 0.30 or greater.

1003.4 Floor surface. Walking surfaces of the *means of egress* shall have a ~~high-traction~~*slip resistant* surface that is securely attached. ~~Walking surfaces that are subject to wet conditions shall have a high-traction surface that complies with ANSI/NFSI B101.1 or ANSI/NFSI B101.3.~~

1011.5.4.1 Nonuniform height risers. Where the bottom or top riser adjoins a sloping *public way*, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the

variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8-percent slope) of *stair* width. The *nosings* or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other *nosing* marking provided on the *stair flight*. The distinctive marking stripe shall be visible in descent of the *stair* and shall have a *high-traction* surface. Marking stripes shall have a width of not less than 1 inch (25 mm) but not more than 2 inches (51 mm).

1011.7.1 Stairway walking surface. The walking surface of treads and landings of a *stairway* shall not be sloped steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. *Stairway* treads and landings shall have a solid surface. ~~Walking~~ Such walking surfaces shall have a *high-traction* surface that is securely attached.

Exceptions:

1. Openings in *stair* walking surfaces shall be a size that does not permit the passage of $^{1}/_{2}$-inch-diameter (12.7 mm) sphere. Elongated openings shall be placed so that the long dimension is perpendicular to the direction of travel.
2. In Group F, H and S occupancies, other than areas of parking structures accessible to the public, openings in treads and landings shall not be prohibited provided a sphere with a diameter of $1^{1}/_{8}$ inches (29 mm) cannot pass through the opening.

1012.7.1 Ramp surface. The walking surface of *ramps* shall have a *high-traction* surface that is securely attached.

1029.11.1 Walking surface. The walking surface of *aisles*~~,~~ shall have a *slip reistant* surface that is securly attached. The walking surface of stepped *aisles* and ramped *aisles* shall have a *high-traction* surface that is securely attached. The surface for stepped *aisles* shall comply with Section 1011.7.1.

Commenter's Reason: The term slip-resistant as used within the IBC is an ambiguous term that implies a level of pedestrian safety but is not defined by way of any nationally recognized consensus standard. During the April 26, 2015 IBC hearing the Means of Egress committee agreed with our position that the term slip resistant as used in the IBC is ambiguous and in need of clarification. We propose to modify our petition to maintain the use of the term slip resistant where appropriate and to omit the term and replace it with the term "high-Traction" for stair treads and ramps (incline walking surfaces) which require a higher level of slip resistance than that of a level walkway. We propose to base the definition of the term slip resistant and high-traction on the Coefficient of Friction (COF) ranges as published in the ANSI/NFSI B101.1-2009 and ANSI/NFSI B101.3-2012. We believe that by defining the term slip resistant and high traction by way of two published ANSI walkway safety concensus standards will serve to protect the general public from the risk of a slip and fall event and will not represent a significant cost to property owners or flooring manufacturers.
Cost Impact: There is no cost impact to this proposal since manufacturers of flooring materials are and have been measuring their products Coefficient of Friction (COF) per the ANSI/NFSI B101.1-2009 and ANSI/NFSI B101.3-2012 standards for years. Representatives from the TCNA, Marble Institute of America, Concrete Polishing Association, and other flooring manufacturers and floor covering associations testified at the April 26, 2015 hearing and confirmed that their representative member companies currently use the BOT-3000, which is an NFSI approved tribometer for measuring COF per the above named ANSI B101 walkway safety standards and therefore there is no cost to the manufacturing industry to purchase additional testing equipment or any personnel expense for in-house laboratory

testing. Given that flooring manufacturers are already testing their products via the use of an NFSI approved tribometer and publish COF data in their specification sheets, property owners will only have to provide such publicly available documentation to the code official. If such documentation is unavailable, the code official may, at their discretion request that the property owner provide COF data via an independent third party accredited Walkway auditor.

Bibliography: ANSI/NFSI B101.1 -2009 Test Method for Measuring Wet SCOF of Common Hard-Surface Floor Materials
ANSI/NFSI B101.3-2012 Test Method for Measuring Wet DCOF of Common Hard-Surface Floor Materials (Including Action and Limit
Thresholds for the Suitable Assessment of the Measured Values)

E2-15

E3-15

1003.4.1 (New), (IFC[BE] 1003.4.1(New))

Proposed Change as Submitted

Proponent : Eric Astrachan, Tile Council of North America, representing Tile Council of North America (eastrachan@tileusa.com)

2015 International Building Code

Add new text as follows:

1003.4 Floor surface. Walking surfaces of the *means of egress* shall have a slip-resistant surface and be securely attached.

1003.4.1 Hard Surface Flooring. Walking surfaces of the means of egress made of ceramic tiles, porcelain tiles, terrazzo, stone or polished concrete and subject to wet conditions shall have a slip-resistant surface complying with ANSI A137.1, Section 6.2.2.1.10 substituting the type of flooring where the word "tile" is used.

Reason: Currently, Section 1003.4 requires that walking surfaces of the means of egress be "slip resistant" with no method of measurement, quantitative threshold, or general principles to help the specifier, end-user, and code official. Given the Code's lack of criteria for "slip resistant," materials are sometimes being inappropriately specified, and accidents are occurring in areas of the means of egress. This can be especially dangerous for emergency responders who are entering a building for the first time, potentially under conditions with water and limited visibility (smoke).
The purpose of this revision is to provide slip resistance criteria for hard surface flooring used in interior walking surfaces of the means of egress. Section 6.2.2.1.10 of the ANSI A137.1-2012 standard for ceramic tile sets forth a quantitative minimum threshold, means of measurement, and general principles regarding slip resistance based on the consensus of a broad range of stakeholders, including the Construction Specifications Institute (CSI), Marble Institute of America (MIA), National Association of Homebuilders (NAHB), Underwriter Laboratories (UL), National Tile Contractors Association (NTCA), Tile Council of North America, and 52 additional stakeholders on the ASC-A108 Committee (for a total of 58). In addition to ceramic and porcelain tile, this Section of ANSI A137.1 is utilized and directly referenced within specifications for other types of hard surface flooring, including terrazzo, stone, and polished concrete.

This proposal to add the above language to the building code is supported by the Tile Council of North America (TCNA), executives of the Marble Institute of America (MIA - with a board vote to take place in the first quarter of 2015), the Executive Committee of the Concrete Polishing Association of America (CPAA) and their Subcommittee on slip resistance (with a board vote to take place in the first quarter of 2015), and the President of the National Terrazzo and Mosaic Association (NTMA - with a board vote to take place in the first quarter of 2015) and many other organizations.

When references to ANSI A137.1 Section 6.2.2.1.10 were proposed in 2012, the Means of Egress Code Committee spoke favorably regarding the criteria and encouraged the proponent to resubmit the proposal in 2015 when the referenced standard was more widely available in print.

Today, copies of ANSI A137.1 are easily accessible both in print and electronically, and all provisions pertinent to ANSI A137.1 Section 6.2.2.1.10 are available for free online via www.TCNAtile.com. Furthermore, these provisions are widely understood and specified throughout the architectural community with hard surface

manufacturers/suppliers/installers providing the information needed by code officials as part of standard product submittals and information.

The section proposed to be referenced reads as follows:

6.2.2.1.10 Coefficient of Friction.

The coefficient of friction (COF) measurement provided in this standard is an evaluation of a tile surface under known conditions using a standardized sensor material prepared according to a specific protocol. As such it can provide a useful comparison of tile surfaces, but it does not predict the likelihood a person will or will not slip on a tile surface.

There are many factors that affect the possibility of a slip occurring on a tile surface including by way of example, but not in limitation, the following: the material of the shoe sole and the degree of its wear; the presence and nature of surface contaminants; the speed and length of stride at the time of a slip; the physical and mental condition of the individual at the time of a slip; whether the floor is flat or inclined, and how the tile surface is used and maintained; and the COF of the tile, how the tile is structured, and how drainage takes place if liquids are involved. Because many variables affect the risk of a slip occurring, the COF shall not be the only factor in determining the appropriateness of a tile for a particular application.

Unless otherwise specified, tiles suitable for level[1] interior spaces expected to be walked upon when wet shall have a wet DCOF of 0.42 or greater when tested using SLS solution as per the procedure in section 9.6.1. However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects. The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear[2] , and manufacturers' guidelines and recommendations.

Some specifiers find it useful to compare dry DCOF measurements to wet DCOF measurements to assess the risk of a slip when transitioning from dry to wet conditions. If dry DCOF measurements using the BOT 3000 are desired, the testing procedure found in section 9.6.2 shall be followed. Alternatively, a dry static coefficient of friction (SCOF) measurement can be made per the ASTM C1028 test method.

When wet SCOF measurements of tiles previously tested per ASTM C1028 are desired for direct comparison to historical values, the C1028 test method shall be followed. While BOT 3000 wet SCOF measurements with a Neolite sensor and distilled water generally correlate overall with ASTM C1028 measurements, results on individual tiles may not correlate and therefore cannot be directly compared.

The presence on installed tiles of water (including standing water as can exist on floors which are not properly sloped for drainage or on exterior tiles immediately after a rain storm or on which snow is melting), oil, grease, and/or any other elements which reduce traction, creates slippery conditions where the risk of a slip cannot be completely eliminated. Tile installations with exposure to such elements require extra caution in product selection, use, and maintenance. The risk of a slip can be diminished but not eliminated in these installations by installing tiles with a structured/textured surface, mosaic tiles, or certain extruded unglazed quarry tiles. The specifier shall follow manufacturers' guidelines and recommendations for these products.

When tested using SLS solution as per the procedure in section 9.6.1, tiles with a wet DCOF of less than 0.42 (including by way of example, but not in limitation, polished tiles), shall only be installed when the surface will be kept dry when walked upon and proper safety procedures will be followed when cleaning the tiles.

1. *Tiles appropriate for ramp applications shall be chosen for the specific properties and use of the ramp and require a wet DCOF greater than 0.42 if*

the ramp will be used under wet conditions. Specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, grade of ramp, expected contaminants, expected maintenance, expected wear, and manufacturers' guidelines and recommendations.

2. *The COF of installed tiles can change over time as a result of wear and surface contaminants. In addition to regular cleaning, deep cleaning and traction-enhancing maintenance may be needed periodically to maintain DCOF values.*

The proposed reference is in the 2012 edition of ANSI A137.1. An update to this edition will be proposed for the Group B Administrative changes. This language is not in the 2008 edition of ANSI A137.1 that is currently referenced in the code for the definition for Porcelain tile.

Bibliography: [Handbook for Ceramic, Glass, and Stone Tile Installation] [TCNA] [2014] [Page 5-6] [http://www.tcnatile.com/trade-news/dcof-acutest.html]
[Interiors and Sources][DCOF: Legal Liabilities, Stopping the Falls] [Elianne Halbersberg] [2013] [Page 58-60] [http://www.interiorsandsources.com/article-details/articleid/16530/title/stopping-the-falls.aspx]

[Interiors and Sources][Stranger than Friction] [Robert Nieminen][11/2013] [Pages 54-55] [http://www.interiorsandsources.com/article-details/articleid/16571/title/stranger-than-friction.aspx]

[Floor Focus][TILE FILES: What is friction, and how does it relate to slip resistance?] [Jim Neel] [10/2013] [Pages 74-75] [http://www.floordaily.net/flooring-news/jim_neel_discusses_coefficients_of_friction.aspx]

Cost Impact: Will not increase the cost of construction
Hard surface flooring that meets or exceeds the criteria of Section 6.2.2.1.10 of the ANSI A137.1-2012 standard is not different in price from hard surface flooring that is below the threshold criteria.

E3-15 : 1003.4.1 (New)-ASTRACHAN5126

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The referenced standard, ANSI A137.1 does not meet the criteria of CP28 for a referenced standard. The standard does has sections written in non-enforceable language. The scope of the standard is limited to ceramic tile; however, this proposal is for multiple materials. The only place the standard is currently referenced in the 2015 IBC code is the definition of ceramic tile.

There would be confusion as to which floors are subject to wet conditions. The proposal does not deal with all hard surface materials, and there seems to be confusion on which hard surfaces in the list would be able to comply.

There is question for maintenance of high traction materials in existing buildings over time – especially when floor products are used for cleaning or waxing.

Assembly Action : None

Public Comment 1:

Proponent : Eric Astrachan, representing Tile Council of North America (eastrachan@tileusa.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1003.4.1 Hard Surface Flooring. ~~Walking surfaces~~ Hard surface flooring of the means of egress ~~made of ceramic tiles, porcelain tiles, terrazzo, stone or polished concrete and subject to wet conditions~~ shall have a ~~slip-resistant surface complying with~~ minimum Dynamic Coefficient of Friction (DCOF) of 0.42 when tested per ANSI A137.1, Section ~~6.2.2.1.10 substituting the type of flooring where the word "tile" is used~~ 9.6.

Commenter's Reason: This proposal has been modified to remove all references to non-mandatory language. Additionally, the threshold requirement has been inserted directly into the language within this Code section, removing the need to reference minimum criteria or qualifying considerations contained within any single product-specific normative scope. The result is simply a reference test method which conforms to the requirements of CP28 and is applicable to a variety of hard surface flooring materials.
Further, all references to wet conditions are removed to satisfy concerns expressed by the Means of Egress Committee regarding the lack of definition of "wet conditions" and potential resulting confusion around which products would be subject to the proposed requirement.

Any floor can be wet at any time. Following the advice of the Means of Egress Committee, this revised proposal alleviates the necessity for the specifier or Code Official to make wet/dry hard surface flooring determinations. It instead references a widely applicable test method which inherently involves a wet condition parameter, and establishes a clear minimum DCOF threshold which can be easily referenced and specified for all hard surface flooring of the means of egress at all times.

This proposal is about safety, first and foremost, and these revisions if approved would facilitate a clear, concise and conservative approach to slip-resistant product specification.

E3-15

E4-15

1003.4.1 (New), (IFC[BE]1003.4.1 (New))

Proposed Change as Submitted

Proponent : Eric Astrachan, Tile Council of North America, representing Tile Council of North America (eastrachan@tileusa.com)

2015 International Building Code

Add new text as follows:

1003.4 Floor surface. Walking surfaces of the *means of egress* shall have a slip-resistant surface and be securely attached.

1003.4.1 Ceramic and Porcelain Tile. Walking surfaces of the means of egress made of ceramic tiles or porcelain tiles and subject to wet conditions shall have a slip-resistant surface complying with ANSI A137.1, Section 6.2.2.1.10.

Reason: Currently, Section 1003.4 requires that walking surfaces of the means of egress be "slip resistant" with no method of measurement, quantitative threshold, or general principles to help the specifier, end-user, and code official. Given the Code's lack of criteria for "slip resistant," materials are sometimes being inappropriately specified, and accidents are occurring in areas of the means of egress. This can be especially dangerous for emergency responders who are entering a building for the first time, potentially under conditions with water and limited visibility (smoke).
The purpose of this revision is to provide slip resistance criteria for ceramic tiles used in interior walking surfaces of the means of egress. Section 6.2.2.1.10 of the ANSI A137.1-2012 standard for ceramic tile sets forth a quantitative minimum threshold, means of measurement, and general principles regarding slip resistance based on the consensus of a broad range of stakeholders, including the Construction Specifications Institute (CSI), Marble Institute of America (MIA), National Association of Homebuilders (NAHB), Underwriter Laboratories (UL), National Tile Contractors Association (NTCA), and many more.

When this same revision was proposed in 2012, the Means of Egress Code Committee spoke favorably regarding the criteria and encouraged the proponent to resubmit the proposal in 2015 when the referenced standard was more widely available in print. Today, copies of ANSI A137.1 are easily accessible both in print and electronically, and all provisions pertinent to ANSI A137.1 Section 6.2.2.1.10 are available for free online via www.TCNAtile.com. Furthermore, these provisions are referenced in their entirety in the "TCNA Handbook for Ceramic, Glass, and Stone Tile Installation" (commonly known as the "TCA Handbook" and referenced in Section 9300 specifications), and are widely understood and specified throughout the architectural community. Additionally, manufacturers provide the information needed by code officials as part of standard product information.

The section proposed to be referenced is as follows:

> ***6.2.2.1.10 Coefficient of Friction.***
>
> *The coefficient of friction (COF) measurement provided in this standard is an evaluation of a tile surface under known conditions using a standardized sensor material prepared according to a specific protocol. As such it can provide a useful comparison of tile surfaces, but it does not predict the likelihood a person will or will not slip on a tile surface.*
>
> *There are many factors that affect the possibility of a slip occurring on a tile surface including by way of example, but not in limitation, the following: the*

material of the shoe sole and the degree of its wear; the presence and nature of surface contaminants; the speed and length of stride at the time of a slip; the physical and mental condition of the individual at the time of a slip; whether the floor is flat or inclined, and how the tile surface is used and maintained; and the COF of the tile, how the tile is structured, and how drainage takes place if liquids are involved. Because many variables affect the risk of a slip occurring, the COF shall not be the only factor in determining the appropriateness of a tile for a particular application.

Unless otherwise specified, tiles suitable for level[1] interior spaces expected to be walked upon when wet shall have a wet DCOF of 0.42 or greater when tested using SLS solution as per the procedure in section 9.6.1. However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects. The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear[2] , and manufacturers' guidelines and recommendations.

Some specifiers find it useful to compare dry DCOF measurements to wet DCOF measurements to assess the risk of a slip when transitioning from dry to wet conditions. If dry DCOF measurements using the BOT 3000 are desired, the testing procedure found in section 9.6.2 shall be followed. Alternatively, a dry static coefficient of friction (SCOF) measurement can be made per the ASTM C1028 test method.

When wet SCOF measurements of tiles previously tested per ASTM C1028 are desired for direct comparison to historical values, the C1028 test method shall be followed. While BOT 3000 wet SCOF measurements with a Neolite sensor and distilled water generally correlate overall with ASTM C1028 measurements, results on individual tiles may not correlate and therefore cannot be directly compared.

The presence on installed tiles of water (including standing water as can exist on floors which are not properly sloped for drainage or on exterior tiles immediately after a rain storm or on which snow is melting), oil, grease, and/or any other elements which reduce traction, creates slippery conditions where the risk of a slip cannot be completely eliminated. Tile installations with exposure to such elements require extra caution in product selection, use, and maintenance. The risk of a slip can be diminished but not eliminated in these installations by installing tiles with a structured/textured surface, mosaic tiles, or certain extruded unglazed quarry tiles. The specifier shall follow manufacturers' guidelines and recommendations for these products.

When tested using SLS solution as per the procedure in section 9.6.1, tiles with a wet DCOF of less than 0.42 (including by way of example, but not in limitation, polished tiles), shall only be installed when the surface will be kept dry when walked upon and proper safety procedures will be followed when cleaning the tiles.

1. *Tiles appropriate for ramp applications shall be chosen for the specific properties and use of the ramp and require a wet DCOF greater than 0.42 if the ramp will be used under wet conditions. Specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, grade of ramp, expected contaminants, expected maintenance, expected wear, and manufacturers' guidelines and recommendations.*
2. *The COF of installed tiles can change over time as a result of wear and surface contaminants. In addition to regular cleaning, deep cleaning and traction-enhancing maintenance may be needed periodically to maintain DCOF values.*

The proposed reference is in the 2012 edition of ANSI A137.1. An update to this edition will be proposed for the Group B Administrative changes. This language is not in the 2008 edition of ANSI A137.1 that is currently referenced in the code for the

definition for Porcelain tile.

Bibliography: [Handbook for Ceramic, Glass, and Stone Tile Installation] [TCNA] [2014] [Pages 5-6] [http://www.tcnatile.com/trade-news/dcof-acutest.html]
[Interiors and Sources][DCOF: Legal Liabilities, Stopping the Falls] [Elianne Halbersberg] [11/2013] [Pages 58-60] [http://www.interiorsandsources.com/article-details/articleid/16530/title/stopping-the-falls.aspx]

[Interiors and Sources][Stranger than Friction] [Robert Nieminen][11/2013] [Pages 54-55] [http://www.interiorsandsources.com/article-details/articleid/16571/title/stranger-than-friction.aspx]

[Floor Focus][TILE FILES: What is friction, and how does it relate to slip resistance?] [Jim Neel] [10/2013] [Pages 74-75] [http://www.floordaily.net/flooring-news/jim_neel_discusses_coefficients_of_friction.aspx]

Cost Impact: Will not increase the cost of construction
Ceramic and porcelain tiles that meet or exceed the criteria of Section 6.2.2.1.10 of the ANSI A137.1-2012 standard are not different in price from tiles that are below the threshold criteria.

E4-15 : 1003.4.1 (New)-ASTRACHAN3424

Public Hearing Results

Committee Action: Disapproved

Committee Reason: While this proposal is limited to tile, this proposal has the same concerns as E3-15.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Eric Astrachan, representing Tile Council of North America (eastrachan@tileusa.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1003.4.1 Ceramic and Porcelain Tile. Walking surfaces of the means of egress made of ceramic tiles or porcelain tiles ~~and subject to wet conditions~~ shall have a ~~slip-resistant surface complying with~~ minimum Dynamic Coefficient of Friction (DCOF) of 0.42 when tested per ANSI A137.1, Section ~~6.2.2.1.10~~ 9.6.

Commenter's Reason: This proposal has been modified to remove all references to non-mandatory language in order that the referenced test method conforms to the

requirements of CP28. Additionally, all references to wet conditions are removed to satisfy concerns expressed by the Means of Egress Committee during testimony on E3 regarding the lack of definition of "wet conditions" and potetntial resulting confusion around which products would be subject to the proposed requriement.

E4-15

E5-15 Part I

1004.1 (IFC[BE]1004.1)

Proposed Change as Submitted

Proponent: Edward Kulik, Chair representing the Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1004.1 Design occupant load. In determining *means of egress* requirements, the number of occupants for whom *means of egress* facilities are provided shall be determined in accordance with this section. The determination of occupant loads for the purposes of means of egress design is based on the function of the area, room or space under consideration as listed in Table 1004.1.2. The assigned function of the space establishes an occupant load factor based on typical usage.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
Properly classifying the purpose of a given building or structure is the very important first step in the design or analysis process. The reason for this is that the various designations account for the inherent hazards and risks typically associated with the intended purpose. Based on those hazards and risks, appropriate limitations and controls are assigned to the building or structure. The International Building Code uses several specific terms to identify the purpose of the building or structure. Those are: occupancy classification, use and function. Occupancy classification and use are often confused and function is misunderstood.

The purpose of this code change is to simply formalize these terms and explain their relationship. This will assist code practitioners in properly establishing applicable code requirements and improve uniformity and continuity in the identification of appropriate provisions. Some of the current confusion is owed to the fact that the legacy codes used these terms, however, in different ways. For instance, BOCA used "use group" as the major designation with "occupancy" being the subordinate term. On the other hand, ICBO used "occupancy/division" as the major designation with "use" as the secondary term. The IBC was created using provisions from each of the legacy codes and the terms are often seen out of technical context.

This proposal will inform users of the IBC system of building classification and assist all concerned in the proper communication of applicable code requirements.

Cost Impact: Will not increase the cost of construction
Provisions simply provide clarification of current requirements.

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: What would be the 'typical usage' could not be uniformly enforced. This could be read to conflict with spaces used for multiple purposes being designed for those purposes as required in Section 302.1. The issue is already addressed in Section 1004.1.2. This is commentary language, not code requirements.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1004.1 Design occupant load. In determining *means of egress* requirements, the number of occupants for whom *means of egress* facilities are provided shall be determined in accordance with this section. The determination of occupant loads for the purposes of means of egress design is based on the function of the area, room or space under consideration as listed in Table 1004.1.2. ~~The assigned function of the space establishes an occupant load factor based on typical usage.~~

Commenter's Reason: The purpose of this public comment is to address the concerns of the IBC-Egress Committee with Part I of this proposal. It is noted that Part II was approved by the IBC-General Committee by a wide margin.
The IBC-Egress Committee was primarily concerned about the last sentence, raising a specific question as to what constituted a "typical usage". The BCAC agrees with the Committee that this sentence is unnecessary and can be deleted, thus removing the term of concern. It is noted that removing this sentence will not create any conflicts with the already-approved Part II. The BCAC urges approval of Part I of this proposal, which will coordinate with the IBC-General Committee's action and bring useful clarifications to code users regarding the relationship between occupancy, use and function requirements in the code.

E5-15 Part I

E5-15 Part II

Chapter 3, 301, 301.1, 302, 302.1, 302.2 (New)

Proposed Change as Submitted

Proponent : Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

CHAPTER 3

~~USE AND~~ OCCUPANCY CLASSIFICATION AND USE

SECTION 301 ~~GENERAL~~ SCOPE

301.1 ~~Scope.~~ General The provisions of this chapter shall control the classification of all buildings and structures as to ~~use~~occupancy and use. Different classifications of occupancy and use represent varying levels of hazard and risk to building occupants and adjacent properties.

SECTION 302 OCCUPANCY CLASSIFICATION AND USE DESIGNATION

302.1 Occupancy classification. ~~General.~~~~Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed in this section.~~Occupancy classification is the formal designation of the primary purpose of the building, structure or portion thereof. Structures shall be classified into one or more of the occupancy groups listed in this section based on the nature of the hazards and risks to building occupants generally associated with the intended purpose of the building or structure.An area,~~A~~ room or space that is intended to be occupied at different times for different purposes shall comply with all ~~of the~~ applicable requirements ~~that are applicable to each of the purposes for which the room or space will be occupied~~associated with such potential multi-purpose. Structures ~~with~~containing multiple occupancy groups~~occupancies or uses~~ shall comply with Section 508. Where a structure is proposed for a purpose that is not specifically ~~provided for in this code~~listed in this section such structure shall be classified in the ~~group that the~~ occupancy most nearly resembles~~, according to~~based on the fire safety and relative hazard ~~involved~~.

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5.
2. Business (see Section 304): Group B.
3. Educational (see Section 305): Group E.
4. Factory and Industrial (see Section 306): Groups F-1 and F-2.
5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5.
6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4.
7. Mercantile (see Section 309): Group M.

8. Residential (see Section 310): Groups R-1, R-2, R-3 and R-4.
9. Storage (see Section 311): Groups S-1 and S-2.
10. Utility and Miscellaneous (see Section 312): Group U.

Add new text as follows:

302.2 Use designation. Occupancy groups contain subordinate uses having similar hazards and risks to building occupants. Uses include, but are not limited to, those functional designations listed within the occupancy group descriptions in this section. Certain uses require specific limitations and controls in accordance with the provisions of Chapter 4 and elsewhere in this code.

Add new text as follows:

CHAPTER 4
SPECIAL DETAILED REQUIREMENTS BASED ON ~~USE~~OCCUPANCY AND ~~OCCUPANCY~~USE

401.1 Detailed ~~use~~occupancy and ~~occupancy~~use requirements. In addition to the occupancy and construction requirements in this code, the provisions of this chapter apply to the ~~special uses~~occupancies and ~~occupancies~~uses described herein.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
Properly classifying the purpose of a given building or structure is the very important first step in the design or analysis process. The reason for this is that the various designations account for the inherent hazards and risks typically associated with the intended purpose. Based on those hazards and risks, appropriate limitations and controls are assigned to the building or structure. The International Building Code uses several specific terms to identify the purpose of the building or structure. Those are: occupancy classification, use and function. Occupancy classification and use are often confused and function is misunderstood.

The purpose of this code change is to simply formalize these terms and explain their relationship. This will assist code practitioners in properly establishing applicable code requirements and improve uniformity and continuity in the identification of appropriate provisions. Some of the current confusion is owed to the fact that the legacy codes used these terms, however, in different ways. For instance, BOCA used "use group" as the major designation with "occupancy" being the subordinate term. On the other hand, ICBO used "occupancy/division" as the major designation with "use" as the secondary term. The IBC was created using provisions from each of the legacy codes and the terms are often seen out of technical context.

This proposal will inform users of the IBC system of building classification and assist all concerned in the proper communication of applicable code requirements.

Cost Impact: Will not increase the cost of construction
Provisions simply provide clarification of current requirements.

Public Hearing Results

Part II

Committee Action: Approved as Modified

Modification:

301.1 General. The provisions of this chapter shall control the classification of all buildings and structures as to occupancy and use. Different classifications of occupancy and use represent varying levels of hazard and risk to building occupants and adjacent properties.

CHAPTER 4

SPECIAL DETAILED REQUIREMENTS BASED ON ~~USE~~OCCUPANCY AND ~~OCCUPANCY~~USE

401.1 Detailed ~~use~~occupancy and ~~occupancy~~use requirements. In addition to the occupancy and construction requirements in this code, the provisions of this chapter apply to the ~~special uses~~ occupancies and ~~occupancies~~uses described herein.

Committee Reason: The committee approved 2 modifications. First the proposal was modified to make sure that the property surrounding each subject building is considered in conjunction with the activity in the building. The second amendment was to extend the clarification of the changes proposed for Chapter 3 into Chapter 4 where special provisions based on use and occupancy are located. Overall the committee found this proposal to be a good clarification between the terms of 'use' and 'occupancy'. Too often they are treated to be the same when they are really distinct terms. The proposal clarifies the difference.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jonathan Siu, City of Seattle Department of Planning & Development, representing Washington Association of Building Officials Technical Code Development Committee (jon.siu@seattle.gov) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

301.1 General The provisions of this chapter shall control the classification of all buildings and structures as to occupancy and use. ~~Different classifications of occupancy and use represent varying levels of hazard and risk to building occupants and adjacent properties.~~

302.1 Occupancy classification. ~~Occupancy classification is the formal designation of the primary purpose of the building, structure or portion thereof.~~ Structures, or portions thereof, shall be classified into one or more of the occupancy groups listed in this section based on the nature of the hazards and risks to building occupants generally associated with the intended purpose of the building or structure. An area, room or space that is intended to be occupied at different times for different purposes shall comply with all applicable requirements associated with such potential multi-purpose. Structures containing multiple occupancy groups shall comply with Section 508. Where a structure is proposed for a purpose that is not specifically listed in this section, such structure shall be classified in the occupancy that it most nearly resembles based on the fire safety and relative hazard.

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5.

2. Business (see Section 304): Group B.

3. Educational (see Section 305): Group E.

4. Factory and Industrial (see Section 306): Groups F-1 and F-2.

5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5.

6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4.

7. Mercantile (see Section 309): Group M.

8. Residential (see Section 310): Groups R-1, R-2, R-3 and R-4.

9. Storage (see Section 311): Groups S-1 and S-2.

10. Utility and Miscellaneous (see Section 312): Group U.

~~**302.2 Use designation.** Occupancy groups contain subordinate uses having similar hazards and risks to building occupants. Uses include, but are not limited to, those functional designations listed within the occupancy group descriptions in this section. Certain uses require specific limitations and controls in accordance with the provisions of Chapter 4 and elsewhere in this code.~~

Commenter's Reason: Section 302.2 and the second sentence in Section 301.1 are proposed to be deleted by this public comment because they are commentary, and do not belong in the body of the code. The first sentence in Section 302.1 might be appropriate in a definition of occupancy classification, but otherwise, is also commentary and is therefore proposed to be deleted. The last sentence of Section 301.1 is also deleted because it is redundant with Section 302.1.

E5-15 Part II

E8-15

Table 1004.1.2, 1004.1.3 (New); (IFC[BE] Table 1004.1.2, 1004.1.3 (New))

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Add new text as follows:

1004.1.3 Conference and meeting rooms in Group B. In Group B buildings, the occupant load factor for determining *means of egress* requirements for conference and meeting rooms with fewer than 50 occupants, shall be 100 gross square feet per person.

Revise as follows:

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Business areas	100 gross
Conference and meeting rooms in business areas	See Section 1004.1.3

(Portions of table not shown remain unchanged.)

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.

Reason: This change is proposed for two reasons: 1) The cumulative occupant load for meeting rooms based on 15 square feet per person can far exceed a reasonable number of actual occupants in Group B, particularly without simultaneous use of work areas and meeting areas. The change will provide a more accurate reflection of the number of occupants for means of egress requirements only. 2) In consideration of the above, this code has been troublesome for tenant improvement projects for business areas when egress requirements are significantly more stringent than shell and core projects. The underlying basis of design for egress requirements in Group B shell and core projects is 100 square feet per occupant and the inclusion of meeting room areas at 15 square feet per occupant has triggered existing stairs to be widened and elevators added to meet the means of egress requirements. This is not necessary to meet the intent of use.

Cost Impact: Will not increase the cost of construction
The impact should reduce the cost of construction. Under the current code

additional elements of egress may be required that are not warranted.

E8-15 : T1004.1.2-COLLINS4480

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The testimony was about simultaneous occupancy, however, there is no requirement in the text that this space could not be a conference room used by the public and not just the occupants on the floor. This could result in inadequate design for exit access doors from the assembly space; or with multiple conference rooms on a floor, cause a problem for adequate sizing of the exits for the floor. An option might be a limit on the room size to allow for a lower capacity the rather than to calculate an occupant load first, and then reduce the occupant load.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Dave Frable, representing US General Services Administration requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1004.1.3 ~~Conference and meeting~~ Small assembly use rooms in Group B. In Group B buildings, the occupant load factor for determining *means of egress* requirements for ~~conference and meeting~~ small assembly use rooms ~~with fewer than 50 occupants~~ 450 square feet or less, shall be ~~100 gross~~ 30 net square feet per person.

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Business areas	100 gross
~~Conference and meeting~~ Small assembly use rooms in business areas	See Section 1004.1.3

(Portions of table not shown remain unchanged.)

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.

Commenter's Reason: Over the past year, The US General Services Administration (GSA) has experienced many different interpretations among A/E firms and fire protection engineers regarding how specific rooms and spaces identified on drawings are to be utilized by building occupants. The terminology used for various types of rooms and spaces identified on design drawings also has been an issue since this terminology is not referenced or described in any national code or standard. For example, small assemble use rooms have been identified on design drawings as huddle rooms, quiet rooms, focus rooms, etc. Depending on the A/E firm or fire protection engineering consultant, the calculated occupant load factor for these small assembly use rooms could range from 15 ft^2/person to 100 ft^2/person. To address the concerns and questions regarding how the design team should calculate the occupant loads for these types of work environments and the appropriateness of using the current occupant load factors for these types of spaces in GSA facilities, we have re-evaluated the current occupant load factors in the IBC pertaining to these types of small assembly rooms.
The intent of this code change is to create a new occupant load factor for small assembly use rooms in business areas which we believe is not adequately addressed in IBC. Based on an evaluation of several recent projects in several GSA regional offices, it was determined that these specific small assembly use rooms are used by employees to transition temporarily from their regular work-station area in order to obtain privacy and/or to avoid disturbing other employees located in the open office environment or to meet with a few colleagues to discuss a work assignment. These rooms are typically not used for conference room settings and therefore should not be compelled to comply to conservative occupant load factors associated with assembly use areas. However, these rooms are considered simultaneous use since they may be used on a regular basis by the employees from other floors in the building thus increasing the floor's occupant load. However, based on the intended use of these rooms and engineering judgment, it was determined that an occupant load factor of 30 ft^2 (net area)/occupant is a reasonable factor to be used to calculate the occupant load of these rooms that are that are typically less than or equal to 450 square feet in area.

In summary, we believe these proposed new occupant load factors still provide a reasonable degree of safety for building occupants as it relates to a building's means of egress systems in commercial office buildings.

Public Comment 2:

Proponent : Steven Orlowski, representing Building Owners and Managers Association, International (sorlowski@boma.org); David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1004.1.3 Conference and meeting rooms in Group B. In Group B buildings, the occupant load factor ~~for determining *means of egress* requirements for conference and meeting rooms with fewer than 50 occupants, shall be~~ 100 gross square feet per person shall include conference and meeting rooms with a net area of less than 750 square feet that are within the tenant space.

Commenter's Reason: The purpose of the public comment is twofold. First, it addresses the concerns the committee had regarding the silmultaneous use of the space, by limiting the provision to those meeting or conference rooms located within the tenant space. The second change implements a 750 square foot limitation on the size of the space, which is derived from using the 15 sf net factor used for unconcentrated assembly space.

E8-15

E10-15

TABLE 1004.1.2; (IFC[BE] TABLE 1004.1.2)

Proposed Change as Submitted

Proponent : Raymond Grill, Arup, representing Arup (ray.grill@arup.com)

2015 International Building Code

Revise as follows:

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Business areas[b]	100 gross

(Portions of table not shown remain unchanged)

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.

b. Uses incidental to the business use, such as conference rooms or break rooms, shall be included in the gross area calculation.

Reason: Incidental uses such as break rooms and conference rooms that are intended to be used by the occupants of the business use should not be loaded as if they were standalone assembly areas. Speculative office developments have regullarly been designed for egress and plumbing fixtures based on the gross area of the floor. The increase in build to suit office projects should not increase the occupant loads of a building and require increased egress width and more plumbing fixtures.

A independant study performed by the Univeristy of Maryland and published by NIST (Evaluation of Survey Procedures for Determining Occupant Load Factors in Contemporary Office Buildings, Issued September 1996) reported on the evaluation of a broad range of types of office buildings. Quoting from the study abstract, "Buildings that are primarily composed of open plan office designs are found to have greater occupant load factors than buildings composed of well-compartmented office designs. County government office buildings are found to be slightly greater occupant load factors than federal government buildings. Federal government buildings have lesser occupant load factors than private office buildings. The mean occupant load factor found in the study for all of the buildings is 248 ft^2/person."

Designers and reviewers who are unfamiliar with the origin and history of the code often over design or require over design when designing build to suit projects by counting conference rooms and break rooms to be considered as assembly uses with simutaneous occupancy with the office areas. This significanlty increases the occupant load. The model codes historically had never been applied in this fashion and the occupant load study referenced above reinforces that is should not be applied in a manner that inappropriately increases the occupant load of the building.

Over design results in a waste of resources when we are collectively trying to achieve sustainable designs.

Cost Impact: Will not increase the cost of construction
The code change proposal would decrease the required design occupant load in business offices and would therefore reduce the number of plumbing fixtures required as well as possibly reduce the required capacity of egress elements. A rough estimate of the installation of a commercial toilet with associated plumbing is at least $1,500. The lost usable/rentable area due to oversizing egress elements could cost thousands of dollars per year. Overdesign is inefficient and not sustainable. Maintaining the unnecessary area would add annual operating costs to the building and waste energy.

E10-15 : T1004.1.2-GRILL5198

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There are no qualifiers for size limits for the conference rooms. The testimony was about simultaneous occupancy, however, there is no requirement in the text that this space could not be a conference room used by the public and not just the occupants on the floor. This could result in inadequate design for exit access doors from the assembly space; or with multiple conference rooms on a floor, cause a problem for adequate sizing of the exits for the floor.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Raymond Grill, representing Arup- Self (ray.grill@arup.com) requests Approve as Submitted.

Commenter's Reason: See the orignal reason for the code change.

Public Comment 2:

Proponent : Gene Boecker, representing National Association of Theatre Owners (geneb@codeconsultants.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.

b. Uses incidental to the business use, such as conference rooms or break rooms <u>not greater than 750 square feet per floor,</u> shall be included in the gross area calculation.

Commenter's Reason: The concern during the committee hearings was that the size of the conference room or break room could be rather large. In it's original form, it would not be unreasonable to think that someone would try to apply this provision with a 2500 square foot training center on the third floor of a four story office buidngs that is opnly 3000 SF per floor - clearly outside the scope. However, by keeping the size per floor down to 750 SF, it makes sense to just "lump it in" with the rest of the business use. The differnce in calculated occupant load is minimal and it makes both design and plan reveiw simpler.

E10-15

E11-15

TABLE 1004.1.2; (IFC[BE] TABLE 1004.1.2)

Proposed Change as Submitted

Proponent : Stephen Thomas, Colorado Code Consulting, LLC, representing International Association of Building Officials (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Industrial areas	~~100~~300 gross

(Portions of table not shown remain unchanged.)

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.

Reason: The current occupant load factor for industrial areas has been around for decades. The Occupant load was appropriate for factories in the early 1900's. However, our factories are much different than they were back then. They have become more automated, requiring less factory workers. Therefore, I believe that the code should reflect how industrial areas are occupied today. Therefore, we have recommended that the occupant load factor be increased resulting in an overall lower occupant load for factories. The factor is based on storage areas and similar spaces.

Cost Impact: Will not increase the cost of construction
This change will reduce cost of construction. It will reduce the number of plumbing fixtures and exit required for such occupancies.

E11-15 : T1004.1.2-THOMAS5294

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Substantiation for the increase in square footage per occupant in all industrial areas was not provided. Some types of industrial occupancies do still rely on a large number of personnel. Allowing for a lower occupant load within a facility such as an airplane manufacture or or high pile automated storage is already permitted by the exception in Section 1004.1.2.

Assembly Motion: As Submitted
Online Vote Results: Failed

Support: 39.29% (156) Oppose: 60.71% (241)

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Stephen Thomas, Colorado Code Consulting, LLC, representing Colorado Chapter ICC (sthomas@coloradocode.net) requests Approve as Submitted.

Commenter's Reason: The purpose of this proposal is to create a more reasonable occupant load factor for industrial areas. The number of occupants in these facilities has drastically changed over the years. Robotics and automation have reduced the need for large numbers of workers in factories. Therefore, the code should reflect the way buildings are being used now instead of how they were used in the 19th and early 20th Century. Many people have told me that our change has not gone far enough. They believe the occupant load factor should be 500 to 700 square feet per occupant. We selected the 300 square feet per occupant based on the current values for storage uses. We are working on getting additional information from the manufacturing industry to support our position. We will provide that documentation at the final action hearings.
Testimony at the committee hearings suggested that this would be a problem for third world countries that still have sweat shops. The fact is that the IBC is not being adopted in these countries. We should be looking at proposals that address problems in countries that actually adopt the code and not locations that have little or no chance of adopting the code.

The overall impact on the means of egress will not be adversely affected. Most large buildings have exits based on travel distance versus number of occupants. The major impact is on the number of plumbing fixtures that would be required in a building.

E11-15

E12-15

TABLE 1004.1.2; (IFC[BE] TABLE 1004.1.2)

Proposed Change as Submitted

Proponent : Masoud Sabounchi, Representing Colorado Chapter of ICC , representing masoud sabounchi (masoud@acecode.com)

2015 International Building Code

Revise as follows:

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Skating rinks, swimming pools	50 gross
Rink and pool	15[b] gross
Decks	

(Portions of table not shown remain unchanged.)

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.

b. For swimming pools that serve Group R-2 and R-3 occupancies, the occupant load factor for the pool deck shall be 30 square feet gross.

Reason: Apartment buildings have swimming pools and decks that serve the apartment building only. Application of occupant load factor of 1:15 results in occupant loads that are very high and not reflecting the use of these decks as amenity spaces for the apartment buildings and unlike a public pool deck. In most cases the calculated occupant loads on these decks is much higher than considering all apartment residents using the decks. The proposed use of the 1:30 occupant load factor is in concert with other nationally recognized codes and more closely reflects the anticipated occupant loads on these decks.

Cost Impact: Will not increase the cost of construction
This proposal would reduce the cost for construction of swimming pool decks that serve R-2 and R-3 occupancies because it allows the occupant load factor to be revised from 1:15 to 1:30 SF gross resulting in reduction of the occupant load and possible reduction in egress width and number of plumbing facilities.

E12-15 : T1004.1.2-SABOUNCHI4396

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There is a concern with this allowance applying to all Group R-2 and R-3 pool decks. Not all residential occupancies have large pool decks; there for the current occupant load could be appropriate. In addition, this occupant load may not be appropriate for large complexes with only one pool, especially time share vacation facilities that operate similarly to hotel/transient type occupancies.

Assembly Motion: **As Submitted**
Online Vote Results: **Failed**
Support: 49.87% (189) Oppose: 50.13% (190)
Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Masoud Sabounchi, representing Colorado Chapter of ICC (masoud@acecode.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Skating rinks, swimming pools	50 gross
Rink and pool	15[b] gross
Decks	

(Portions of table not shown remain unchanged.)

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.

b. For swimming pools that serve Group R-2 ~~and R-3 occupancies~~ occupancy apartment buildings, the occupant load factor for the pool deck shall be 30 square feet gross.

Commenter's Reason: Residential R-2 apartment buildings have swimming pools and pool decks that serve the dwelling units. This proposal is not applicable to hotels (R-1 occupancy classification) as questioned by the committee members during the hearings. The revised footnote b, states "For swimming pools that serve Group R-2 occupancy apartment buildings, the occupant load factor for the pool deck shall be 30 square feet gross." The proposal is now limited to R-2 apartment buildings and not dormitories or other R-2 occupancies.
Application of the occupant load factor of 1:15 results in very high occupant loads not reflecting the intended use of these decks. These are not public pools and are used

by the building residents. In most cases the calculated occupant loads on the pool decks is much higher than all apartment occupants. A common application of this provision is where a pool and pool deck is located on second, third or other upper stories in an apartment building resulting in additional exits and exit capacities as well as additional plumbing facilities. Most building officials consider these decks as having Group A-3 Occupancy classification and requiring plumbing facilities based on this occupancy classification. The proposed use of the 1:30 occupant load factor is in concert with NFPA 101 and more closely reflects the anticipated occupant loads on these decks. This proposal allows reduction in number of plumbing facilities and reduction in exit capacities.

E12-15

E18-15

TABLE 1006.2.1; (IFC[BE] TABLE 1006.2.1)

Proposed Change as Submitted

Proponent : Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Revise as follows:

TABLE 1006.2.1
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)		
		Without Sprinkler System (feet)		With Sprinkler System (feet)
		Occupant Load		
		OL ≤ 30	OL>30	
A[c] , E, M	49	75	75	75[a]
B	49	100	75	100[a]
F	49	75	75	100[a]
H-1, H-2, H-3	3	NP	NP	25[b]
H-4, H-5	10	NP	NP	75[b]
I-1, I-2[d] , I-4	10	NP	NP	75[a]
I-3	10	NP	NP	100[a]
R-1	10	~~NP~~75	~~NP~~75	75[a]
R-2	10	~~NP~~75	~~NP~~75	125[a]

R-3[e]	10	~~NP~~75	~~NP~~75	125[a]
R-4[e]	10	75	75	125[a]
S[f]	29	100	75	100[a]
U	49	100	75	75[a]

For SI: 1 foot = 304.8 mm.

NP = Not Permitted

a. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.

b. Group H occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.5.

c. For a room or space used for assembly purposes having *fixed seating*, see Section 1029.8.

d. For the travel distance limitations in Group I-2, see Section 407.4.

e. The length of *common path of egress travel* distance in a Group R-3 occupancy located in a mixed occupancy building or within a Group R-3 or R-4 *congregate living facility*.

f. The length of *common path of egress travel* distance in a Group S-2 *open parking garage* shall be not more than 100 feet.

Reason: The purpose of this proposal is to allow a maximum common path of egress travel distance to be 75' for Group R-1, R-2 and R-3. Without this change, any addition to an existing non-sprinklered building would require two exits from any room without any allowance for the common path of egress travle distance. This travel distance is the same as what was permitted in the code before all Group R was required to be sprinklered.

Cost Impact: Will not increase the cost of construction
There is not change in requirements.

E18-15 : T1006.2.1-CUEVAS4824

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This table needs to be coordinated with the IEBC. Does IEBC send you back to the IBC for travel distance for alterations in existing buildings without sprinklers or additions to existing buildings where only the addition is sprinklered? If you take out the NP in the table for new construction, then the table could be read to allow non-sprinklered Group R occupancies.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Victor Cuevas, representing City of Los Angeles (victor.cuevas@lacity.org) requests Approve as Submitted.

Commenter's Reason: Would like to address the committee's reason.
Section 101.2 of 2015 IBC states the scope of the IBC as follows:

"*The provisions of this code shall apply to construction, alteration, relocation, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.*"

Clearly, 2015 is not limited to new buildings only, and it applies to existing building are altered, enlarged or repaired. The 2015 IBC is not limited to new buildings only. The 2015 IBC applies to existing buildings being altered, enlarged or repaired. This proposed change will allow a travel distance of 75 feet for Group R Occupancy and will be will consistent with Sections 805.3.1.1 and 805.4.1.1 of 2015 IEBC.

E18-15

E20-15

1006.2.2.1, 1006.2.2.2 (New), 1006.2.2.2, 1010.1.10; (IFC[BE] 1006.2.2.1, 1006.2.2.2 (New), 1006.2.2.2, 1010.1.10)

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1006.2.2.1 Boiler, incinerator and furnace rooms. Two *exit access doorways* are required in boiler, incinerator and furnace rooms where the area is over 500 square feet (46 m^2) and any fuel-fired equipment exceeds 400,000 British thermal units (Btu) (422 000 KJ) input capacity. Where two *exit access doorways* are required, one is permitted to be a fixed ladder or an *alternating tread device*. *Exit access doorways* shall be separated by a horizontal distance equal to one-half the length of the maximum overall diagonal dimension of the room.
Doors shall swing in the direction of egress travel, regardless of the occupancy load served. Doors shall be provided with panic hardware or fire exit hardware.

Add new text as follows:

1006.2.2.2 Electrical Equipment Space. Entrance to and egress from the working space for electrical equipment shall be in compliance with the *International Fire Code* and Sections 110.26 and 110.33 of NFPA 70, as applicable.

Doors shall swing in the direction of egress travel, regardless of the occupancy load served. Doors shall be provided with panic hardware or fire exit hardware.

Revise as follows:

~~**1006.2.2.2**~~ **1006.2.2.3 Refrigeration machinery rooms.** Machinery rooms larger than 1,000 square feet (93 m^2) shall have not less than two *exits* or *exit access doorways*. Where two *exit access doorways* are required, one such doorway is permitted to be served by a fixed ladder or an *alternating tread device*. *Exit access doorways* shall be separated by a horizontal distance equal to one-half the maximum horizontal dimension of the room.

All portions of machinery rooms shall be within 150 feet (45 720 mm) of an *exit* or *exit access doorway*. An increase in *exit access* travel distance is permitted in accordance with Section 1017.1.

Doors shall swing in the direction of egress travel, regardless of the *occupant load* served. Doors shall be tight fitting and self-closing. Doors shall be provided with panic hardware or fire exit hardware.

1010.1.10 Panic and fire exit hardware. Doors serving a Group H occupancy and doors serving rooms or spaces with an *occupant load* of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than *panic hardware* or *fire exit hardware*._

Exceptions:

1. A main *exit* of a Group A occupancy shall be permitted to be locking in accordance with Section 1010.1.9.3, Item 2.
2. Doors serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.9.

~~Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with *exit* or *exit access doors*, shall be equipped with *panic hardware* or *fire exit hardware*. The doors shall swing in the direction of egress travel.~~

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
Requirements for access and working space to and about electrical equipment is covered in the National Electrical Code, NFPA 70, and the International Fire Code. The requirements for electrical equipment rated 600 volts or less are covered in Section 110.26 of NFPA 70. The requirements for electrical equipment rated more than 600 volts are covered in Sections 110.32 and 110.33 of NFPA 70. These requirements are more detailed than what is currently in the building code, and apply to electrical equipment in all occupancies.

Section 2701.1 of the IBC requires electrical components, equipment, and systems to be designed and constructed in accordance with NFPA 70. By including a specific reference in Chapter 10 of the building code to the access and working space requirements in NFPA 70, registered design professionals will be aware to incorporate these requirements into the design of the building before starting construction.

The door requirements are added to current Sections 1006.2.2.1 and 1006.2.2.2 for consistency with these types of mechanical spaces.

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction. This code proposal may actually decrease the cost of construction, because the design of the building will include the requirements that are already required elsewhere in this code.

E20-15 : 1006.2.2.2 (NEW)-KULIK3668

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposed text does not include the limit of equipment in

NFPA 70 Section 1110.26 and 1110.33. The proposal does not include transformers. NEC is egress from equipment spaces, which is not always a room. The proposal would literally require panic hardware and door swing in the direction of egress for electrical rooms no matter what sized. There was no justification provided for panic hardware in boiler, incinerator, furnace or refrigerator The proposal is not totally coordinated with the requirements in NFPA 70. The proposed text does not include the limit of equipment size in NFPA 70 Sections 110.26 and 110.33. The proposal does not include transformers. NEC is egress from equipment spaces, which is not always a room. The proposal would literally require panic hardware and door swing in the direction of egress for electrical rooms no matter what size.

There was no justification provided for panic hardware in boiler, incinerator, furnace or refrigerator machinery rooms.

There were multiple modifications to this proposal. Proposals E20, E21 and E80 should be coordinated in the public comment phase.
achinery rooms. This proposal should be coordinated with E21 and E80.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1006.2.2.1 Boiler, incinerator and furnace rooms. Two *exit access doorways* are required in boiler, incinerator and furnace rooms where the area is over 500 square feet (46 m^2) and any fuel-fired equipment exceeds 400,000 British thermal units (Btu) (422 000 KJ) input capacity. Where two *exit access doorways* are required, one is permitted to be a fixed ladder or an *alternating tread device*. *Exit access doorways* shall be separated by a horizontal distance equal to one-half the length of the maximum overall diagonal dimension of the room.
~~Doors~~ Exit and exit access doorways shall swing in the direction of egress travel, regardless of the occupancy load served. Doors shall be provided with panic hardware or fire exit hardware.

1006.2.2.2 Electrical Equipment Space. Entrance to and egress from the working space for electrical equipment shall be in compliance with the *International Fire Code* and Sections 110.26 and 110.33 of NFPA 70, as applicable.

~~Doors shall swing in the direction of egress travel, regardless of the occupancy load served. Doors shall be provided with panic hardware or fire exit hardware.~~

1006.2.2.3 Refrigeration machinery rooms. Machinery rooms larger than 1,000 square feet (93 m^2) shall have not less than two *exits* or *exit access doorways*. Where two *exit access doorways* are required, one such doorway is permitted to be served by a fixed ladder or an *alternating tread device*. *Exit access doorways* shall be separated by a horizontal distance

equal to one-half the maximum horizontal dimension of the room.

All portions of machinery rooms shall be within 150 feet (45 720 mm) of an *exit* or *exit access doorway*. An increase in *exit access* travel distance is permitted in accordance with Section 1017.1.

~~Doors~~ Exit and exit access doorways shall swing in the direction of egress travel, regardless of the *occupant load* served. Doors shall be tight fitting and self-closing. Doors shall be provided with panic hardware or fire exit hardware.

Commenter's Reason: The requirements for the number of exits, minimum size of the exits, and where fire exit hardware and panic hardware are required where electrical equipment is installed are more detailed in the National Electrical Code (NFPA 70) and the International Fire Code.

The limits of the electrical equipment are specifically covered in Sections 110.26 and 110.33 of the National Electrical Code. This proposal covers egress from working space for electrical equipment, regardless of whether the electrical equipment is in a room or not.

Directing to the specific requirements in Sections 110.26 and 110.33 of the National Electrical Code ensures there are no conflicts in the requirements. Locating the requirements for electrical equipment space with the requirements for boilers, furnaces, incinerators and refrigeration equipment helps to make sure these issues are addressed before starting construction.

A modification is proposed to clarify that only exit access and exit doorways, not auxiliary doors, have to swing in the direction of travel. This will correlate with the proposed change for the doors for refrigeration machinery rooms in the code proposal E 22-15.

Where exit and exit access doorways are used, the use of panic hardware and door swing in the direction of egress should be addressed for boiler, incinerator and furnace rooms, and electrical spaces.

E20-15

E21-15

1006.2.2.2 (New); (IFC[BE] 1006.2.2.2 (New))

Proposed Change as Submitted

Proponent : Lee Kranz, City of Bellevue, WA, representing Washington Association of Building Officials Technical Code Development Committee

2015 International Building Code

Add new text as follows:

1006.2.2.2 Electrical equipment rooms. Rooms containing electrical equipment shall be provided with the number of exit or exit access doorways in accordance with NFPA70 Article 110 where all of the following apply:

1. The electrical equipment is rated at 1,200 amperes or more.
2. The electrical equipment is over 6 feet (1829 mm) wide;
3. The electrical equipment contains overcurrent devices, switching devices or control devices.

Reason: This code change is needed to create consistency with the NEC. NEC Article 110.26 (C) (2) requires a 2nd exit when large electrical equipment (over 6 feet wide) exceeding 1,200 amperes where the equipment contains overcurrent devices, switching devices or control devices. Most building code reviewers are not aware of the need for the 2nd exit in the NEC and the requirement is often not identified until after construction begins when it is costly to modify the architectural design. Rather than requiring a second exit or exit access doorway, the proposal specifies that the number of exits or exit access doorways shall be in accordance with NEC Article 110. This approach was taken due to several exceptions contained in Article 110 exempting the second exit doorway and which would not be appropriate to duplicate in the IBC.
Similar provisions are located in Section 1010.1.10 to require panic hardware or fire exit hardware for electrical rooms with large electrical equipment.

Cost Impact: Will not increase the cost of construction
This code change will save money by reducing costly change orders when the NEC requirement for a 2nd exit is not cought during plan review.

E21-15 : 1006.2.2.2 (New)-KRANZ4099

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Not everyone has a copy of NFPA 70. The technical criteria needs to be included in the code. Proposals E20, E21 and E80 should be coordinated in the public comment phase.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Lee Kranz, City of Bellevue, WA , representing Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1006.2.2.2 Electrical equipment rooms. Rooms containing electrical equipment shall be provided with the ~~number of~~ a second exit or exit access doorways ~~in accordance with~~ as required by NFPA70 Article 110 where all of the following apply:

1. The electrical equipment is rated at 1,200 amperes or more.
2. The electrical equipment is over 6 feet (1829 mm) wide;
3. The electrical equipment contains overcurrent devices, switching devices or control devices.

1010.1.10 Panic and fire exit hardware. Doors serving a Group H occupancy and doors serving rooms or spaces with an *occupant load* of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than *panic hardware* or *fire exit hardware*.

Exceptions:

1. A main *exit* of a Group A occupancy shall be permitted to be locking in accordance with Section 1010.1.9.3, Item 2.
2. Doors serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.9.

~~Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with *exit* or *exit access doors*, shall be equipped with *panic hardware* or *fire exit hardware*. The doors shall swing in the direction of egress travel.~~

1010.1.10.1 Electrical rooms and working clearances Exit and exit access doors serving electrical rooms and working spaces shall swing in the direction of egress travel and shall be equiped with panic hardware or fire exit hardware where such rooms or working spaces contain one or more of the following:

1. Equipment operating at more than 600 volts, nominal.
2. Equipment operating at 600 volts or less, nominal and rated at 800 amperes or more, and where the equipment contains overcurrent devices, switching devices or control devices.

Exception: Panic and fire exit hardware is not required on exit and exit access doors serving electrical equipment rooms and working spaces where such doors are not less than twenty-five feet (7.6 m) from the nearest edge of the electrical equipment.

Commenter's Reason: There were 3 separate proposals submitted that addressed egress from electrical rooms; E20, E21 and E80. The Egress Committee suggested

that all 3 proponents collaborate for consistency. All 3 proposals referenced applicable sections from NFPA 70 to alert building reviewers and fire code reviewers that there may be additional requirments in the NEC that should be considered. E21 is being submitted as a public comment and includes modifications suggestted by the Committee for all 3 proposals.

E20, submitted by BCAC, included requirements for door swing and panic hardware. The Committee said there was no justification to require panic hardware in boiler, incinerator, furnace or refrigeration machinery rooms so those requirements have been removed in this public comment. Requirements related to door swing should be located in Section 1010 as submitted in E80 which are included in this public comment. Reference to NFPA 70 Article 110 has been maintained in this public comment.

E21, submitted by WABO TCD, addressed the need to check NFPA 70 Article 110 for the number of exits required from rooms containing electrical equipment exceeding certain limits. The Committee suggested that the technical criteria from NFPA 70 needed to be included in the proposal. However, lengthy and complex exception criteria, along with unfamiliar terms used in the NEC which are not easily understood or interpreted by building or fire code reviewers did not warrent bringing the text into the building code. Therefore, no changes in this respect have been made to this public comment. One modification to Section 1006.2.2.2 changes "in accordance with..." to read "required by...". This change clarifies that NFPA 70 Artcle 110 provides the scoping language to determine when a second means of egress is required from a room containing electrical equipment.

E80, submitted by Ross Barrick, also included reformatted text addressing door swing and panic hardware. E80 appropriately locates the revised text in Section 1010.1.10.1 related to door swing and the need for panic hardware and is well coordinated with NFPA 70 so the original text of E80 is maintained in this public comment.

E21-15

E25-15

1006.3, 1006.3.1; (IFC[BE] 1006.3, 1006.3.1)

Proposed Change as Submitted

Proponent : Gregory Keith, Professional heuristic Development, representing The Boeing Company (grkeith@mac.com)

2015 International Building Code

Revise as follows:

1006.3 Egress from stories or occupied roofs. The *means of egress* system serving any *story* or occupied roof shall be provided with the number of separate and distinct *exits* or access to *exits* based on the aggregate *occupant load* served in accordance with this section. The *path of egress travel* to an *exit* shall not pass through more than one adjacent *story*.

1006.3.1 Egress based on occupant load. Each *story* and occupied roof shall have the minimum number of ~~independent~~ separate and distinct *exits*, or access to *exits*, as specified in Table 1006.3.1. A single *exit* or access to a single *exit* shall be permitted in accordance with Section 1006.3.2. The required number of *exits*, or *exit access stairways* or *ramps* providing access to *exits*, from any *story* or occupied roof shall be maintained until arrival at the *exit discharge* or a *public way*.

Reason: Section 1006.3.1 currently references "independent" exits. Independent can be a vague or judgemental term. The proposed "separate and distinct" language is more specific. Also, that terminology is currently used in the definition of common path of egress travel to identify a point where two exits or access to exits would be required.
Additionally, Section 1006.3 has been modified to include the qualifying requirement of "separate and distinct" as well. Conceivably, if both the entrance to an interior exit stairway at one story and the entrance to the same interior exit stairway at an adjacent story are both within the prescribed exit access travel distance limitations, it could be interpreted that the required number of exits requirement has been satisfied because the two entrances are "independent." To clarify the intent, a sentence has been added stating that a single interior exit stairway cannot serve as both exits from a given story. The separate and distinct terminology would require that there be a second formal exit available within established exit access travel limitations.

This proposal intends to amplify separate exit requirements. It is also intended to clarify that although required exits from a given story may be located at different building levels, the same interior exit stairway may not serve as satisfying multiple exit requirements. Obviously, if such interior exit stairway was compromised, the opportunity for a true alternate exit would be lost. Approval of this proposal increases occupant safety within the means of egress system.

Cost Impact: Will not increase the cost of construction
This proposal is intended to clarify current numbers of exits provisions.

E25-15 : 1006.3-KEITH4704

Public Hearing Results

Committee Action: **Approved as Modified**

Modification:

1006.3 Egress from stories or occupied roofs. The means of egress system serving any story or occupied roof shall be provided with the number of separate and distinct exits or access to exits based on the aggregate occupant load served in accordance with this section. ~~Where an exit access stairway provides access to an exit at another story, a single interior or exterior exit stairway having entrances at each story shall not serve as both required exits for a sing story.~~ The path of egress travel to an exit shall not pass through more than one adjacent story.

Committee Reason: The modification is to delete the new sentence. This new sentence is commentary language and is not needed in code text.

The term 'separate and distinct' will clarify that one exit stairway cannot serve as both exits from a floor. Moving down a floor via an exit access stairway does not alleviate the requirement for two exits.

Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Jonathan Siu, City of Seattle Department of Planning & Development, representing Washington Association of Building Officials Technical Code Development Committee (jon.siu@seattle.gov) requests Approve as Submitted.

Commenter's Reason: We agree with the intent of this proposed code change. However, we disagree that the text deleted by the Committee is commentary--one might consider it to be redundant, given the "separate and distinct" language, but it is not commentary. As to the whether the text proposed to be deleted is redundant, we believe it much more clearly states the requirement that a second egress path that leads back to the same exit is not allowed to count as a second exit, and should be retained.

E25-15

E26-15

1006.3; (IFC[BE] 1006.3)

Proposed Change as Submitted

Proponent : Rick Lupton, representing City of Seattle, Dept of Planning & Development (rick.lupton@seattle.gov)

2015 International Building Code

Revise as follows:

1006.3 Egress from stories or occupied roofs. The *means of egress* system serving any *story* or occupied roof shall be provided with the number of *exits* or access to *exits* based on the aggregate *occupant load* served in accordance with this section. The *path of egress travel* to an *exit* shall not pass through more than one adjacent *story*. Where a story is required to have two or more exits or access to exits, the rooms, areas, or spaces within that story shall have access to no less that two exits, except as otherwise provided in this code.

Reason: The code is not clear that where a story requires two or more exits (or access to exits) that all the rooms on that story require access to at least two exits, even if the room only requires one exit access -unless the room meets a specific exception such as direct egress to grade. The code change proposal clarifies the intent, while stiill enabling the single means of egress provisions for a space in Chapter 10 or elsewhere in the code, such as Section 402.8.3.

Cost Impact: Will not increase the cost of construction
No additional exits are required and so cost is not increased, though some designs may require further thought.

E26-15 : 1006.3-LUPTON5540

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposed language is confusing. The proposed language could be read to require additional exits from the floor.

Assembly Motion: As Submitted
Online Vote Results: Failed
Support: 26.6% (104) Oppose: 73.4% (287)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Rick Lupton, City of Seattle, Dept of Planning & Development, representing City of Seattle, Dept of Planning & Development (rick.lupton@seattle.gov) requests Approve as

Modified by this Public Comment.

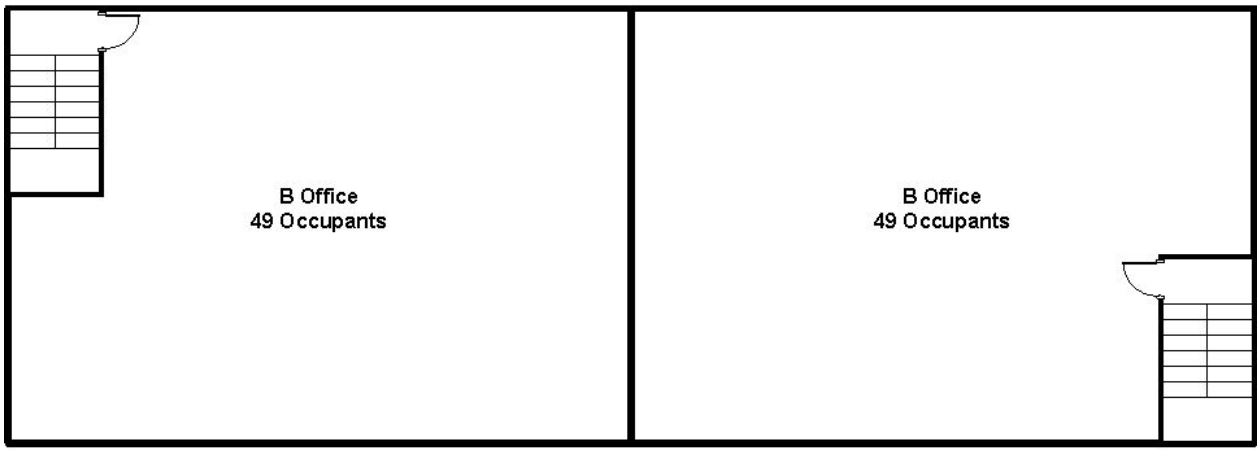
Modify as Follows:

2015 International Building Code

1006.3 Egress from stories or occupied roofs. The *means of egress* system serving any *story* or occupied roof shall ~~be provided with~~ provide access to the number of~~*exits* or access to~~*exits* based on the aggregate *occupant load* served in accordance with this section. The *path of egress travel* to an *exit* shall not pass through more than one adjacent *story*. ~~Where a story is required to have two or more exits or access to exits, the rooms, areas, or spaces within that story shall have access to no less that two exits, except as otherwise provided in this code.~~

Commenter's Reason: The weakness in the 2015 IBC language is it addresses only the number of exits, or exit accesses, but does not clearly address access to those exits (or exit access stairs, ramps, doors, etc). The public comment clearly requires access to the number of exits required by the section, for each story or occupied roof deck.
This avoids confusion by a plan reviewer when confronted by a proposal (below) where a third story of an office building is renovated to house two tenants, each having 49 occupants and access to one exit, even though the story is provided with two exits. Both the tenant spaces need access to both exits on a third story, The public comment makes that clear.

The original code change proposal was thought to be confusing and might be read to require additional exits. The public comment simplifies the language, addressing access to the required number of exits.The omission of the phrase "or access to exits", by the public comment, in no way prevents use of an exit access stairway, ramp, or doorway, while eliminating awkward wording that causes confusion.



3rd Story of an Office Building: Does the means of egress system meet the code?

E26-15

E27-15

1006.3, 1006.3.1 (New); (IFC[BE] 1006.3, 1006.3.1 (New))

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

Revise as follows:

1006.3 Egress from stories or occupied roofs.
The *means of egress* system serving any *story* or occupied roof shall be provided with the number of *exits* or access to *exits* based on the aggregate *occupant load* served in accordance with this section. ~~The *path of egress travel* to an *exit* shall not pass through more than one adjacent *story*.~~

Add new text as follows:

1006.3.1 Adjacent story. The path of egress travel to an exit shall not pass through more than one adjacent story.

Exception: The path of egress travel to an exit shall be permitted to pass through more than one adjacent story in any of the following:

1. In Group R-1, R-2 or R-3 occupancies, exit access stairways and ramps connecting four stories or less serving and contained within an individual dwelling unit or sleeping unit or live/work unit.
2. Exit access stairways serving and contained within a Group R-3 congregate residence or a Group R-4 facility.
3. Exit access stairways and ramps in open parking garages that serve only the parking garage.
4. Exit access stairways and ramps serving open-air assembly seating complying with the exit access travel distance requirements of Section 1029.7.
5. Exit access stairways and ramps between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums and sports facilities.

Reason: The intent of this proposal is to coordinate Section 1006.3 and the allowance for exit access stairways in Section 1019.3. The 2nd sentence of Section 1006.3 currently says that the required number of exits must be available not more than one story above or below the exit you are on. The first part of this proposal is to put that requirement in its own section, Section 1006.3.1.
Section 1019.3 Exception 1, allows for open exit access stairways for two story buildings. However, there are several situations where the intent was for open exit access stairways to be utilized for more than one story, provided that the travel distance is met – within a 3 or 4 story dwelling, in atriums, in open air seating, and from balconies. It is also the intent to allow for open stairways for multiple stories

within open parking garages, per Section 1019.3 and Section 1017.3. Exceptions to new Section 1006.3.1 would clarify where this is permitted.

The exceptions here are direct copies of the exceptions in Section 1019.3. If there are revisions to those exceptions in this cycle, there will be a public comment to revise the language here to be consistent.

Alternatives also discussed where one exception to Section 1006.3.1 with a reference to specific exceptions in the open exit access stairway provisions in Section 1019.3; or removal of the sentence now in Section 1006.3.1.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Unenclosed Exit Stairs. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.http://www.iccsafe.org/cs/CTC/Pages/default.aspx

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at:http://www.iccsafe.org/cs/BCAC/Pages/default.aspx .

Cost Impact: Will not increase the cost of construction
This is for clarification, therefore, there will be no additional requirements.

E27-15 : 1006.3-KULIK3645

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: This proposal provides needed correlation with Section 1019.3 for single exit buildings that allow for open stairways to serve as the means of egress for more than one story.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, ICC Building Code Action Committee (bcac@iccsafe.org); Gregory Keith, representing The Boeing Company (grkeith@mac.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1006.3.1 Adjacent story.

The path of egress travel to an exit shall not pass through more than one adjacent story.

Exception: The path of egress travel to an exit shall be permitted to pass through more than one adjacent story in any of the following:

1. In Group R-1, R-2 or R-3 occupancies, exit access stairways and ramps connecting four stories or less serving and contained within an individual dwelling unit or sleeping unit or live/work unit.
2. Exit access stairways serving and contained within a Group R-3 congregate residence or a Group R-4 facility.
3. Exit access stairways and ramps in open parking garages that serve only the parking garage.
4. Exit access stairways and rampsin buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the stairway or ramp and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.
5. Exit access stairways and ramps within an atrium complying with the provisions of Section 404.
6. Exit access stairways and ramps serving open-air assembly seating complying with the exit access travel distance requirements of Section 1029.7.
7. Exit access stairways and ramps between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums and sports facilities.

Commenter's Reason: E 27-15 was proposed by the ICC Building Code Action Committee and approved as submitted by the Means of Egress Code Committee. The published reason for the proposal stated, "The intent of this proposal is to coordinate Section 1006.3 and the allowance for exit access stairways in Section 1019.3. The 2nd sentence of Section 1006.3 currently says that the required number of exits must be available not more than one story above or below the exit you are on." The reason further states, "However, there are several situations where the intent was for open exit access stairways to be utilized for more than one story, provided that the travel distance is met--within a 3 or 4 story building, in atriums, in open air seating, and from balconies."
The reason statement emphasized that, "The exceptions are direct copies of the exceptions in Section 1019.3. If there are revisions to those exceptions in this cycle, there will be a public comment to revise the language here to be consistent."

Clearly, the intent of the proposal was to duplicate those permitted open exit access stairway conditions listed in Section 1019.3 as acceptable methods of accessing an exit at another building level within exit access travel distance limitations and the prescribed details of the various conditions. Unfortunately, two Section 1019.3 conditions (Conditions 4 and 5) have been omitted from the list of exceptions in the proposal. Although the atrium design condition was referenced in the published reason statement, that exception was not included in the proposal.

The Means of Egress Code Committee's published reason statement for approval as submitted for E 27-15 reinforces the intent; "This proposal provides needed correlation with Section 1019.3 for single exit buildings that allow for open stairways to serve as the means of egress for more than one story."

This public comment completes the intent of the ICC BCAC by including Section 1019.3, Conditions 4 and 5 verbatim as Exceptions 4 and 5 to Section 1006.3.1.

Public Comment 2:

Proponent : Sarah Rice, The Preview Group, representing The Preview Group requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1006.3.1 Adjacent story.

The path of egress travel to an exit shall not pass through more than one adjacent story.

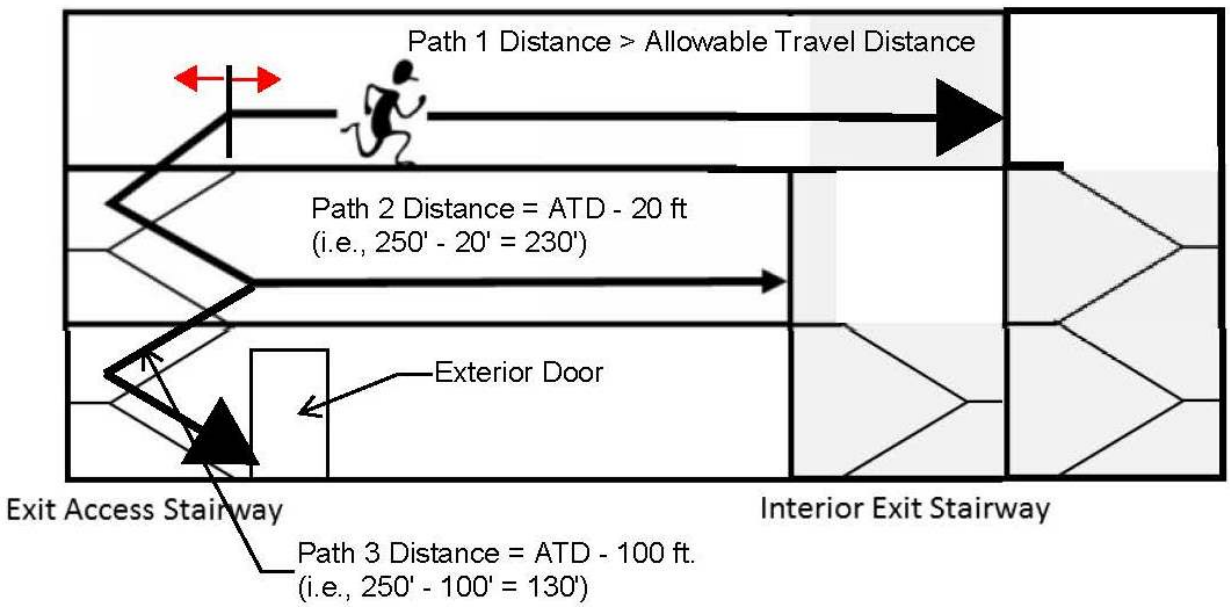
Exception: The path of egress travel to an exit shall be permitted to pass through more than one adjacent story in any of the following:

1. In Group R-1, R-2 or R-3 occupancies, exit access stairways and ramps connecting four stories or less serving and contained within an individual dwelling unit or sleeping unit or live/work unit.
2. Exit access stairways serving and contained within a Group R-3 congregate residence or a Group R-4 facility.
3. Exit access stairways and ramps in open parking garages that serve only the parking garage.
4. Exit access stairways and ramps serving open-air assembly seating complying with the exit access travel distance requirements of Section 1029.7.
5. Exit access stairways and ramps between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums and sports facilities.
6. <u>Where the path of egress travel along the exit access stairway or ramp to an exit is within the allowable exit access travel distance in Section 1017.</u>

Commenter's Reason: As has been brought to light by the proponent, by limiting the path of egress travel to one adjacent story Section 1006.3.1 severly and erroneously limited the configurations that could use an exit access stair. The Code Development Committee understood this dilema and supported the addition of 5 exceptions to Section 1006.3.1, where none existed before.
This public comment seeks to add one more exception, one that is tied to a fundamental concept that from the beginning has been associated with the use of an exit access stair - exit access travel distance. From the beginning the CTC Open Stairway Study Group, which developed and brough forth Code Change E5-09/10 resulting in the concept of exit access stairs being an part of a required means of egress system. The Study Group always had the exit access travel distance limits in the IBC at the forefront of the discussions and imbedded in the language that was developed, and accepted by the membership.

In limiting the path of travel to one adjacent story fundamentally ignores the concept of exit access travel distance. What if the exit access travel distance of traversing 2 stories is less than that a person would go on an adjacent story as shown in the

diagram below?



Why should the path of egress not be allowed to go to the closest exit, regardless off the number of stories away from the point of origin? When a person could actually reach an exit located more than one story from where they started in a distance that is less than that if they have to go to the exit on the adjacent story seems so obvious, but without the proposed language the code forces the uses of the exit on the adjanct story, regardless of the travel distance to that exit. This application essentially flies in the face of a fundamental life safety - get people to the closest exit if you can.

We ask that the proposed language to add an new Exception #6 be accedpte, thus allowing the exit access travel distance to drive the egress design, not an arbitrary limit of one adjacent story.

E27-15

E28-15

1006.3.2, Table 1006.3.2(1) and Table 1006.3.2(2); (IFC[BE] 1006.3.2, Table 1006.3.2(1) and Table 1006.3.2(2))

Proposed Change as Submitted

Proponent: Wayne Jewell, Green Oak Charter Township, representing Green Oak Charter Township (wayne.jewell@twp.green-oak.mi.us); Dave Collins, representing the American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Revise text as follows:

1006.3.2 Single exits. A single exit or access to a single exit shall be permitted from any story or occupied roof where one of the following conditions exists:

1. The occupant load, number of dwelling units and ~~common path of egress~~ exit access travel distance does not exceed the values in Table 1006.3.2(1) or 1006.3.2(2).
2. Rooms, areas and spaces complying with Section 1006.2.1 with exits that discharge directly to the exterior at the level of exit discharge, are permitted to have one exit or access to a single exit.
3. Parking garages where vehicles are mechanically parked shall be permitted to have one exit or access to a single exit.
4. Group R-3 and R-4 occupancies shall be permitted to have one exit or access to a single exit.
5. Individual single-story or multistory dwelling units shall be permitted to have a single exit or access to a single exit from the dwelling unit provided that both of the following criteria are met:
   5.1. The dwelling unit complies with Section 1006.2.1 as a space with one means of egress.
   5.2. Either the exit from the dwelling unit discharges directly to the exterior at the level of exit discharge, or the exit access outside the dwelling unit's entrance door provides access to not less than two approved independent exits.

TABLE 1006.3.2(1)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBER OF	MAXIMUM ~~COMMON PATH OF EGRESS~~EXIT

		DWELLING UNITS	ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane	R-2[a, b]	4 dwelling units	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 3048 mm.

NP = Not Permitted

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with *emergency escape and rescue openings* in accordance with Section 1030.

b. This table is used for R-2 occupancies consisting of *dwelling units*. For R-2 occupancies consisting of *sleeping units*, use Table 1006.3.2(2).

TABLE 1006.3.2(2)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY	MAXIMUM ~~COMMON PATH OF EGRESS~~EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane	A, B[b] , E F[b] , M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2[a,c] , R-4	10	75
	S[b,d]	29	75
Second story above grade	B, F, M, S[d]	29	75

plane			
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with *emergency escape and rescue openings* in accordance with Section 1030.

b. Group B, F and S occupancies in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 shall have a maximum *exit access* travel distance of 100 feet.

c. This table is used for R-2 occupancies consisting of *sleeping units*. For R-2 occupancies consisting of *dwelling units*, use Table 1006.3.2(1).

d. The length of *exit access* travel distance in a Group S-2 *open parking garage* shall be not more than 100 feet

Reason: Code hange E127 from the last cycle had the last column heading of both tables as maximum exit access travel distance. Code Change E1 changed it to maximum common path of egress. Since using that terminology of common path of travel distances when dealing with a single exit building can create confusion, it is suggested to return the terminology back to exit access travel distance which removes confusion and is still technically correct for single exit buildings or those where common path of travel is applicable. This change would literally not change the intent of the requirement – which is to measure to the top of an exit stairway or down the stairway with an exit access stairway. In the definition of 'common path of egress travel' we state that the occupants have 'access to two exits or exit access doorways' - how does that occur in a single exit building? *Common Path of Travel* distances are discussed in Section 1006.2.1 and prescribed in Table 1006.2.1; which do differ from the distances in Tables 1006.3.2(2) for some occupancies.

Cost Impact: Will not increase the cost of construction
This change is an editorial change and eliminates confusion. If it works maybe that redcues the cost of construction as time will be saved (which has a cost) trying to figure out what the code is saying, therefore saves cost.

E28-15 : 1006.3.2-JEWELL5394

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The change to exit access travel distance would be a much more restrictive requirement than measuring to the common path of egress travel. There should have been a correlative change to the title heading in Section 1006.2.1 to remove common path of egress travel distance.

Assembly Motion: As Submitted

Online Vote Results: **Successful**
Support: 63.05% (215) Oppose: 36.95% (126)
Assembly Action : **Approved as Submitted**

Individual Consideration Agenda

Public Comment 1:

This code change proposal received a successful action of Approve as Submitted.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Approve as Submitted was successful by a vote of 63.05% (215) to 36.95% (126) by eligible members online during the period of May 14 - May 28, 2015.

Public Comment 2:

Proponent : Wayne Jewell, Green Oak Charter Township, representing self (wayne.jewell@twp.green-oak.mi.us) requests Approve as Submitted.

Commenter's Reason: This public comment is in support of the very successful floor motion. The application of the text in this proposal is for single exit buildings ONLY. The definition of common path of travel is only applicable when two paths of travel to two exits are required.

COMMON PATH OF EGRESS TRAVEL. That portion of the *exit access* travel distance measured from the most remote point within a *story* to that point where the occupants have **separate access to two *exits*** or *exit access* doorways.

The committee's reasoning statement is in error. Measuring to exit access versus common path isn't more restrictive. The distances in the table weren't changed. What was proposed was a change to the language in both the written text of Section 1006.3.2 and in the heading in Tables 1006.3.2(1) and 1006.3.2(2) to be consistent with the subject matter - distance to a single exit in a building with one exit. In a single exit building there is no location where this pert of the definition of *Common Path of Travel* - "separate access to two exits" occurs. The building only has ONE exit - not two. Simply ask yourself - If there aren't two exits how does common path of travel by definition occur?

E28-15

E31-15

202(New), 1008.2.1.1(New), 1008.3, 1008.3.1, 1008.3.4, 1013.6.3, 1025.5; (IFC[BE] 1008.2.1.1(New), 1008.3, 1008.3.1, 1008.3.4, 1013.6.3, 1025.5)

Proposed Change as Submitted

Proponent : Charles Barlow (cvbarlow@everglow.us)

2015 International Building Code

Add new definitions as follows:

SECTION 202 DEFINITIONS

DAYLIGHT RESPONSIVE CONTROL. A device or system that provides automatic control of electric light levels based on the amount of daylight in a space.

GENERAL LIGHTING. Lighting that provides a substantially uniform level of illumination throughout an area. General lighting shall not include decorative lighting or lighting that provides a dissimilar level of illumination to serve a specialized application or feature within such area.

OCCUPANT SENSOR CONTROL. An automatic control device or system that detects the presence or absence of people within an area and causes lighting, equipment or appliances to be regulated accordingly.

TIME SWITCH CONTROL. An automatic control device or system that controls lighting or other loads, including switching off, based on time schedules.

Revise as follows:

SECTION 1008 MEANS OF EGRESS ILLUMINATION

1008.1 Means of egress illumination. Illumination shall be provided in the *means of egress* in accordance with Section 1008.2. Under emergency power, means of egress illumination shall comply with Section 1008.3.

1008.2 Illumination required. The *means of egress* serving a room or space shall be illuminated at all times that the room or space is occupied.

Exceptions:

1. Occupancies in Group U.
2. *Aisle accessways* in Group A.
3. *Dwelling units* and *sleeping units* in Groups R-1, R-2 and R-3.
4. *Sleeping units* of Group I occupancies.

~~1008.3~~ 1008.2.1 ~~Emergency~~ Illumination power ~~for illumination~~ supply. The power supply for means of egress illumination shall normally be provided by the premises' electrical supply.

Add new text as follows:

1008.2.1.1 Lighting controls. General lighting in the means of egess shall be permitted to use daylight responsive controls, occupant sensor controls and time switch controls. In rooms and spaces where emergency lighting is required in Sections 1008.3, 1008.3.1 and 1008.3.2, the lighting controls for the general means of egress lighting shall comply with all of the following:

1. The daylight responsive controls, occupant sensor controls and time switch controls are listed and evaluated to automatically energize the controlled lights upon device failure or loss of normal power.
2. For occupant sensor controls, the control is activated by any occupant movement in the area served by the controlled lights and illumination timers are set for a durations of 15 minutes minimum.
3. A daylight responsive control or occupant sensor control does not control lights required as a charging source for photoluminescent egress path markings in accordance with Section 1025.
4. A daylight responsive controls, occupant sensor controls or time switch controls does not control electrical power to, or illumination for exit signs in accordance with Section 1013.
5. A daylight responsive controls, occupant sensor controls or time switch controls does not control emergency egress lighting required in Section 1008.3.

Revise as follows:

~~**1008.2.1**~~ **1008.2.2 Illumination level under normal power.** The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface.

Exception: For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' fire alarm system:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
2. Steps, landings and the sides of ramps shall be permitted to be marked with self-luminous materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems listed in accordance with UL 1994.

~~**1008.2.2**~~ **1008.2.3 Exit discharge.** In Group I-2 occupancies where two or more exits are required, on the exterior landings required by Section 1010.6.1, means of egress illumination levels for the exit discharge shall be provided such that failure of any single lighting unit shall not reduce the illumination level on that landing to less than 1 footcandle (11 lux).

~~**1008.3.1**~~ **1008.3** ~~**General**~~ **Illumination of the means of egress under emergency power.** In the event of power supply failure in rooms and spaces that require two or more means of egress, an emergency electrical system shall automatically illuminate all of the following areas:

1. *Aisles*.
2. *Corridors*.
3. *Exit access stairways* and *ramps*.

~~**1008.3.2**~~ **1008.3.1 Buildings.** In the event of power supply failure in buildings that require two or more *means of egress*, an emergency electrical system shall automatically illuminate all of the following areas:

1. *Interior exit access stairways* and *ramps*.
2. *Interior* and *exterior exit stairways* and *ramps*.
3. *Exit passageways.*
4. Vestibules and areas on the level of discharge used for *exit discharge* in accordance with Section 1028.1.
5. Exterior landings as required by Section 1010.1.6 for *exit doorways* that lead directly to the e*xit discharge*.

~~**1008.3.3**~~ **1008.3.2 Rooms and spaces.** In the event of power supply failure, an emergency electrical system shall automatically illuminate all of the following areas:

1. Electrical equipment rooms.
2. Fire command centers.
3. Fire pump rooms.
4. Generator rooms.
5. Public restrooms with an area greater than 300 square feet (27.87 m^2).

~~**1008.3.4**~~ **1008.3.3 Duration and controls.** The emergency power system shall provide power for a duration of not less than 90 minutes and shall consist of storage batteries, unit equipment or an on-site generator. Lights for the emergency illumination of the means of egress shall not be controlled by daylight responsive controls, occupant sensor controls or time switch controls. The installation of the emergency power system shall be in accordance with Section 2702.

~~**1008.3.5**~~ **1008.3.4 Illumination level under emergency power.** Emergency lighting facilities shall be arranged to provide initial illumination that is not less than an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at floor level. Illumination levels shall be permitted to decline to 0.6 footcandle (6 lux) average and a minimum at any point of 0.06 footcandle (0.6 lux) at the end of the emergency lighting time duration. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded. In Group I-2 occupancies, failure of any single lighting unit shall not reduce the illumination level to less than 0.2 foot-candle (2.2 lux).

SECTION 1013 EXIT SIGNS

1013.6.3 Power source. Exit signs shall be illuminated at all times. Lights for the illumination of exit signs and the electrical power to the exit signs shall not be controlled by daylight responsive controls, occupant sensor controls or time switch controls. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator.

The installation of the emergency power system shall be in accordance with Chapter 27.

Exceptions:

1. *Approved* exit sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system.
2. Group I-2 Condition 2 exit sign illumination shall not be provided by unit equipment battery only.

SECTION 1025 LUMINOUS EGRESS PATH MARKINGS

1025.5 Illumination. Where *photoluminescent* exit path markings are installed, they shall be provided with not less than 1 footcandle (11 lux) of illumination for not less than 60 minutes prior to periods when the building is occupied and continuously during occupancy. Lighting that is the charging source for photoluminescent egress path markings shall not be controlled by daylight responsive controls or occupant sensor controls.

Reason: The entire Section 1008 is being shown so that the reorganization for means of egress lighting sections and references are clear. The four definitions match those currently in the IECC for these types of controls.
The proper operation of (electrical) general lighting used to provide minimum illumination in the means of egress must not be
compromised when operated under normal electrical power. In areas where emergency lighting is installed – aisles, corridors, exit access stairways and ramps – the need for reliable (electrical) general lighting and electrical emergency lighting cannot be overestimated. This proposal seeks to impose minimum listing, testing and performance requirements on lighting controls if they are used in the means of egress in areas where electrical emergency lighting are required.

The overwhelming majority of emergency evacuations take place when the (electrical) general lighting is operating properly – providing a minimum of 1 ft-c of illumination when measured at floor level. In areas of the means of egress where (electrical) emergency lighting is required to be installed and maintained, these luminaires provide safe illumination during emergency evacuations. Proper illumination in exit stairs and exit access corridors has been shown to be so valuable to safe egress during emergency evacuations that code authorities now require (non-electrical) luminous egress path markings in the exit stairs of high rise buildings. Some local jurisdictions also require luminous egress path markings installed at the perimeter of exit passageways in public buildings, schools, healthcare facilities and hotels.

Lighting controls – daylight responsive controls, occupant sensor controls and time switch controls - currently installed in the areas of the means of egress of some buildings where electrical emergency lighting is required to be installed and maintained - are being used to reduce illumination levels below 1 footcandle at the walking surface when normal electrical power is available. If the egress capacity of a specific means of egress is required during periods of reduced or completely powered off illumination, the building owner is creating an unsafe condition. Worse, if the lighting controls fail to operate properly during an emergency evacuation, the remaining egress capacity may not be sufficient to safely and quickly evacuate the building.

To meet code requirements, the building owner should maintain minimum illumination levels where electrical emergency lighting is required to be installed and maintained at all times the specific means of egress is required, or he should use lighting control devices that meet the conditions above. The proper operation of emergency lighting must not be compromised when operated under normal power. Lighting controls and occupancy sensors currently installed in the means of egress of some buildings are causing the improper activation of emergency lighting when

normal electrical power is still available. Although these lighting controls are likely improperly installed, there should be specific language in the building and fire codes that this is not allowed. In other facilities, lighting controls on luminaires used for emergency illumination in the means of egress control illumination levels during operation with normal power. In these buildings, there should be emergency luminaires in the means of egress without lighting controls or occupancy sensors to provide the minimum illumination levels required under emergency power.

The Commercial Energy Chapter of the IEC 2015 specifies the use of various lighting controls and interior lighting power allowances for commercial buildings. Paragraph C405.2 Lighting Controls (Mandatory) states that lighting controls are not required in areas required to be continuously illuminated, interior exit stairways, interior exit ramps and exit passageways. Yet, lighting controls are increasingly installed in these areas. Additionally, it is commonly thought that the requirement for these lighting controls is to power off the general lighting in these areas. The IEC allows for the dimming of lights. Minimum illumination levels required by the IBC 2015 and IFC 2015 in the means of egress can be easily accomplished with dimming controls.

There is NO specific code requirement that prohibits the use of lighting controls on electrical emergency lighting or electrical exit signs. There is NO specific code requirement the prohibits the use of lighting controls on (electrical) general lighting - where electrical emergency lighting is required to be installed and maintained - that might affect the normal operation of electrical emergency lighting or electrical exit signs. There is NO specific code requirement in Section 1008 Means of Egress Illumination that qualifies the use of lighting controls used to control general lighting in the means of egress – areas such as rooms and spaces where emergency lighting is required. There is NO specific code requirement for the use of lighting controls used to control (electrical) general lighting where photoluminescent egress path markings are installed.

Cost Impact: Will not increase the cost of construction
There should be no additional cost to the building owner. This proposal suggests that lighting controls – daylight responsive controls, occupant sensor controls and time switch controls - should not be used to save energy and money at the expense of life safety.
Traditionally, building and fire codes have required continuous and minimum illumination in the means of egress, for reasons of life safety. During periods when normal electrical power operates properly, this minimum illumination level is 1 ft-candle when measured at the walking surface. For periods when normal electrical power fails and emergency electrical power sources ONLY are available, the average illumination is 1 ft-c with a minimum of 0.6 ft-c along the path of egress where electrical emergency lighting is required to be installed and maintained. Power for electrically powered emergency lighting and exit signs is required to maintain required illumination levels for at least 90 minutes after the failure of (electrical) general lighting.

E31-15 : 1008.2.1.2 (New)-BARLOW4492

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal removes the artificial lighting option currently permitted in the code. It is not know at this time if there are devices available that will meet the provisions proposed for daylight responsive and occupant sensor controls. The code already allows for lights to be turned off, so you don't need provisions for these controls.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Manny Muniz, representing Self (Mannymuniz.mm@gmail.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1013.6.3 Power source. Exit signs shall be illuminated at all times. Lights for the ~~illumination~~ illuminatin of exit signs ~~and~~ , the electrical power to the exit signs and the charging light source for photoluminescent exit signs shall not be controlled by daylight responsive controls, occupant sensor controls or time switch controls. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27.

Exceptions:

1. *Approved* exit sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system.
2. Group I-2 Condition 2 exit sign illumination shall not be provided by unit equipment battery only.

Commenter's Reason: The modification will clarify and ensure that exit signs are not turned off or their visibility reduced by the use of a lighting control device intended to conserve energy. This is consistent with the NFPA 101 Life Safety Code, Section 7.8.1.2.2 (6) which prohibits the use of lighting control devices when used to turn off any lights relied upon for activation of photoluminescent exit signs, and Section 7.8.1.2.2 (7) which prohibits lighting control devices from turning off any exit signs.

Bibliography: NFPA 101 Life Safety Code, 2015, Section 7.8.1.2.2 (6) & 7.8.1.2.2 (7)

Public Comment 2:

Proponent : Manny Muniz, representing Self (Mannymuniz.mm@gmail.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1013.6.3 Power source. Exit signs shall be illuminated at all times. Lights for the ~~illumination~~ illuminatin of exit signs and the electrical power to the exit signs shall not be controlled by daylight responsive controls, occupant sensor controls or time switch controls. To ensure continued

illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27. Storage batteries and unit equipment shall be listed in accordance with UL 924.

Exceptions:

1. *Approved* exit sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system.
2. Group I-2 Condition 2 exit sign illumination shall not be provided by unit equipment battery only.

Commenter's Reason: While the intention of E31-15, as it pertains to 1013.6.3, is to ensure that the power source for exit signs is reliable and not compromised by the use of energy conserving lighting control devices, there is a discrepancy that of the three emergency power systems described in 1013.6.3, only an on-site generator is required to be listed in accordance with a standard. This minimum level of reliability and performance should also apply to storage batteries and unit equipment, which are both within the scope of UL 924. This is consistent with the NFPA 101 Life Safety Code, Section 7.9.2.5.
Lighting control devices used to control battery equipped emergency luminaires are also within the scope of UL 924 to ensure that they are designed and tested to override any "off" or "dim" settings on their controlled luminaires if there is a loss of normal power. This is consistent with NFPA 101, Section 7.8.1.2.2 (1).
Using UL 924 listed equipment will reduce uncertainty as to the acceptability of the equipment as installed. It also validates that the battery recharge times are as claimed by the equipment manufacturer and establishes minimum levels for equipment performance under emergency conditions. It also ensures that the normal risks for fire and electric shock injury are appropriately mitigated.

Bibliography: UL 924, Emergency Lighting and Power Equipment, 9th Edition
NFPA 101 Life Safety Code, 2015 Edition, Sec. 7.9.2.5.

Public Comment 3:

Proponent : Manny Muniz, representing Self (Mannymuniz.mm@gmail.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1008.3.3 Duration and controls. The emergency power system shall provide power for a duration of not less than 90 minutes and shall consist of storage batteries, unit equipment or an on-site generator. Lights for the emergency illumination of the means of egress shall not be controlled by daylight responsive controls, occupant sensor controls or time switch controls. The installation of the emergency power system shall be in accordance with Section 2702. Storage batteries, unit equipment and lighting control devices used to control battery equipment emergency luminaires shall be listed in accordance with UL924.

Commenter's Reason: While the intent of E31-15, as it pertains to 1008.3.3, is to ensure that the lights for the lights for the illumination of the means of egress is reliable and not compromised by the use of energy conserving lighting control devices, there is a discrepancy that of the three emergency power systems described in 1008.3.3, only an on-site generator is required to be listed in accordance with a standard. This minimum level of reliability and performance should also apply to storage batteries and unit equipment, which are both within the scope of UL 924. This is consistent with the NFPA 101 Life Safety Code, Section 7.9.2.5.
Using UL 924 listed equipment will reduce uncertainty as to the acceptability of the equipment as installed. It also validates that the battery recharge times are as claimed by the equipment manufacturer and establishes minimum levels for equipment performance under emergency conditions. It also ensures that the normal risks for fire and electric shock injury are appropriately mitigated.

Bibliography: UL 924, 9th Edition, Emergency Lighting and Power Equipment
NFPA 101 Life Safety Code, 2015 Edition, Sec. 7.9.2.5 and 7.8.1.2.2(1)

Public Comment 4:

Proponent : Manny Muniz, representing Self (Mannymuniz.mm@gmail.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1025.5 Illumination. Where *photoluminescent* exit path markings are installed, they shall be provided with not less than 1 footcandle (11 lux) of illumination for not less than 60 minutes prior to periods when the building is occupied and continuously during occupancy. Lighting that is the charging source for photoluminescent egress path markings shall not be controlled by daylight responsive controls or occupant sensor controls. Time switch controls on a charging source shall be listed in accordance with UL924.

Commenter's Reason: The intent of E31-15, as it pertains to 1025.5, is to ensure that the required minimum 1 footcandle of illumination for photoluminescent exit path markings is not turned off or reduced by the use of a lighting control device. The modification will allow the use of a UL 924 listed time switch control to turn on the charging lights for photoluminescent egress path markings as an appropriate method for complying with the requirement in the first sentence and will ensure performance and reliability. It will also reduce uncertainty as to the acceptability of these devices as installed.

Bibliography: UL 924 Emergency Lighting and Power Equipment, 9th Edition
NFPA 101, 2015 Edition, Sec. 7.8.1.2.2(6)

Public Comment 5:

Proponent : Manny Muniz, representing Self (Mannymuniz.mm@gmail.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1013.6.3 Power source. Exit signs shall be illuminated at all times. Lights for the– illumination of exit signs and the electrical power to the exit signs shall not be controlled by daylight responsive controls, occupant sensor controls or time switch controls. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27.

Exceptions:

1. *Approved* exit sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system.
2. Group I-2 Condition 2 exit sign illumination shall not be provided by unit equipment battery only.
3. <u>The charging light source for photoluminescent exit signs shall not be prohibited from utilizing a control switch where the charging source for the photoluminescent exit signs is illuminated at all times the room or space is occupied.</u>

Commenter's Reason: One of the intentions of E31-15 as it pertains to 1013.6.3 is to ensure that the lights used for the illumination of exit signs will be reliable. UL 924, Section SG5, which governs photoluminescent exit signs, requires that the exit signs be marked "Min 5 fc external light on sign face at all times of building occupancy." or " Min 5 fc fluorescent light on sign face at all times of building occupancy." as appropriate and that the instructions state that the external illumination source is to be energized at all times during building occupancy. This is also consistent with NFPA 101, Section 7.10.5.1 which requires that the exit signs be illuminated as required by the provisions of 7.8, Illumination of Means of Egress. The modification will prolong the life of the charging light source, require less frequent bulb replacement, and provide energy savings which is the intent of using non-electrical exit signs. Means of egress illumination and exit sign illumination should operate together so that a person can both see the egress path and then identify the exits.
In a typical office building where workers work from 9 AM to 6 PM Monday through Friday, and allowing for the building being opened at 8 AM and closed at 7 PM, the building is occupied less than one-third of the time. Two thirds of the time, the charging light source for a photoluminescent exit sign consumes electricity needlessly.

Bibliography: UL 924, Emergency Lighting and Power Equipment, 9th Edition
NFPA 101 Life Safety Code, 2015 Edition, Sec. 7.10.5.1.

E31-15

E32-15

1008.2.2, 1008.3.5; (IFC[BE] 1008.2.2, 1008.3.5)

Proposed Change as Submitted

Proponent : John Williams, CBO, CBO, Chair, Adhoc Healthcare Committee, representing Adhoc Health Care Committee (AHC@iccsafe.org); Carl Baldassarra, P.E., FSFPA, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

1008.2.2 Exit discharge. In Group I-2 occupancies where two or more exits are required, on the exterior landings required by Section 1010.6.1, means of egress illumination levels for the exit discharge shall be provided such that failure of any single ~~lighting unit~~ bulb or ballast shall not reduce the illumination level on that landing to less than 1 footcandle (11 lux).

1008.3.5 Illumination level under emergency power. Emergency lighting facilities shall be arranged to provide initial illumination that is not less than an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at floor level. Illumination levels shall be permitted to decline to 0.6 footcandle (6 lux) average and a minimum at any point of 0.06 footcandle (0.6 lux) at the end of the emergency lighting time duration. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded. In Group I-2 occupancies, failure of any single ~~lighting unit~~ bulb or ballast shall not reduce the illumination level to less than 0.2 foot-candle (2.2 lux).

Reason: The proposed language would better define what constitutes a failure of a lighting unit.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is a clarification of requirements; therefore there is no change in construction cost.

E32-15 : 1008.2.2-WILLIAMS4242

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The individual lighting mode of failure is what is important. Terminology that is across all types of fixtures is needed. Perhaps the language in NEC for lighting units would be appropriate.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : John Williams, CBO, representing Adhoc Healthcare Committee (AHC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1008.2.2 Exit discharge. In Group I-2 occupancies where two or more exits are required, on the exterior landings required by Section 1010.6.1, means of egress illumination levels for the exit discharge shall be provided such that failure of ~~any~~ a single ~~bulb or ballast~~ lamp in a luminaire shall not reduce the illumination level on that landing to less than 1 footcandle (11 lux).

1008.3.5 Illumination level under emergency power. Emergency lighting facilities shall be arranged to provide initial illumination that is not less than an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at floor level. Illumination levels shall be permitted to decline to 0.6 footcandle (6 lux) average and a minimum at any point of 0.06 footcandle (0.6 lux) at the end of the emergency lighting time duration. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded. In Group I-2 occupancies, failure of ~~any~~ a single ~~bulb or ballast~~ lamp in a luminaire shall not reduce the illumination level to less than 0.2 foot-candle (2.2 lux).

Commenter's Reason: This public comment is primarily focused upon correcting the terminology that applies to all types of fixtures and aligns with new technologies. This revision coordinates with terminology used by the industry and terminology defined in the National Electrical Code. Luminaire is defined as a complete lighting unit that is comprised of light sources such as lamp(s). In addition, it focuses upon individual lamps versus an entire unit.
The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts

in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: Adhoc Healthcare.

E32-15

E35-15

1009.1 (IFC[BE] 1009.1)

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1009.1 Accessible means of egress required. Accessible *means of egress* shall comply with this section. *Accessible* spaces shall be provided with not less than one accessible *means of egress*. Where more than one *means of egress* are required by Section 1006.2 or 1006.3 from any *accessible* space, each *accessible* portion of the space shall be served by not less than two accessible *means of egress*.

Exceptions:

1. Accessible *means of egress* are not required to be provided in existing buildings.
2. ~~One accessible *means of egress* is required from an *accessible mezzanine* level in accordance with Section 1009.3, 1009.4 or 1009.5.~~
2. In assembly areas with ramped *aisles* or stepped *aisles*, one accessible *means of egress* is permitted where the *common path of egress travel* is *accessible* and meets the requirements in Section 1029.8.

Reason: Section 1009.1 Exception 2 should be deleted.
When originally proposed there was a conflict between accessible means of egress and mezzanine requirements. Accessible means of egress would have required mezzanines in non-sprinklered buildings to have two enclosed stairways with areas of refuge, wider stairways and two-way communication. Mezzanine requirements allowed for two open stairways. Requiring one enclosed stairway and one open stairway for an accessible mezzanine was considered a compromise.

The concept of where open stairways can serve as part of a means of egress has evolved. Mezzanine stairways are now specifically addressed in Section 1009.3 Exception 1. The proposed deletion in Section 1009.1 would make mezzanine requirements consistent with the accessible means of egress requirements for a two story building. For non-sprinklered buildings, both stairways would need to meet the 48" width provisions so that both stairways could be utilized for assisted rescue; but at the same time allow for both stairways to be open. For sprinklered buildings, due to the exceptions in Section 1009.3, the required stairway widths can remain 36"or 44" as applicable. The end result will be a clarification of the codes and an increase in options for assisted rescue; at the same time a decrease in construction costs from what would have been required under previous codes.

With Section 1009.1 Exception 2 removed, this will increase the level of safety for persons with disabilities and fire fighters because two options for accessible means of egress will be provided.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under

the CTC Area of Study entitled Unenclosed Exit Stairs. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.http://www.iccsafe.org/cs/CTC/Pages/default.aspx

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal offers design options that can reduce overall costs.

E35-15 : 1009.1-KULIK3643

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Two accessible means of egress is a burden for small mezzanines. The current requirement for one accessible means of egress provides a sufficient level of safety.

Assembly Motion: As Submitted
Online Vote Results: Failed
Support: 38.57% (140) Oppose: 61.43% (223)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: The Building Code Action Committee (BCAC) is requesting approval of this proposal as submitted. The code committee felt that requiring two means of egress would be a burden to small mezzanines. The deletion of this exception would only affect mezzanines that were large enough that they would have to have two means of egress. In addition, the code committee overlooked the allowance in Section 1009.3 Exception 1 which allows open exit access stairways from mezzanines to be considered part of an accessible means of egress.

As stated in the original reason statement, this is an exception that was a compromise that was needed when only enclosed stairways could serve as part of an accessible means of egress. Deletion of this exception will be a clarification of the codes and an increase in options for assisted rescue. This will increase the level of safety for persons with disabilities and fire fighters because two options for

accessible means of egress will be provided from the larger mezzanines.

E35-15

E37-15
1009.2

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

Revise as follows:

1009.2 Continuity and components.
Each required accessible *means of egress* shall be continuous to a *public way*. The accessible means of egress shall provide a path of travel along an accessible route in accordance with Section 1009.2.1 through 1009.2.3. ~~*and shall consist of one or more of the following components:*~~

1. ~~*Accessible routes* complying with Section 1104.~~
2. ~~*Interior exit stairways* complying with Sections 1009.3 and 1023.~~
3. ~~*Exit access stairways* complying with Sections 1009.3 and 1019.3 or 1019.4.~~
4. ~~*Exterior exit stairways* complying with Sections 1009.3 and 1027 and serving levels other than the *level of exit discharge*.~~
5. ~~Elevators complying with Section 1009.4.~~
6. ~~Platform lifts complying with Section 1009.5.~~
7. ~~*Horizontal exits* complying with Section 1026.~~
8. ~~*Ramps* complying with Section 1012.~~
9. ~~*Areas of refuge* complying with Section 1009.6.~~
10. ~~Exterior areas for assisted rescue complying with Section 1009.7 serving exits at the *level of exit discharge*.~~

Add new text as follows:

1009.2.1. Accessible exit access. The path of travel for exit access shall be along an accessible route and shall consist of one or more of the following components:

1. Accessible routes complying with Section 1104
2. Platform lifts complying with Sections 1009.5 and 1109.7.
3. Exit access ramps complying with Section 1012.

Exception: Exit access stairways between stories and mezzanines and complying with Section 1009.3 and complying with either Section 1019.3 or 1019.4.

1009.2.2 Accessible exits. The path of travel within the exit shall be along an accessible route.

Exceptions:

1. Interior exit stairways complying with Sections 1009.3 and 1023.
2. Exterior exit stairways complying with Sections 1009.3 and 1027 and

serving levels other than the level of exit discharge.
3. Elevators complying with Sections 1009.4 and 1109.6.
4. Exterior areas of assisted rescue complying with Section 1009.7 serving exits at the level of exit discharge.

1009.2.3 Accessible exit discharge. At the level of exit discharge the path of travel for the exit discharge shall be along an accessible route connecting the exit to the public way.

Exceptions:

1. The accessible route connects to an exterior area for assisted rescue complying with Section 1009.7.
2. The accessible route connects to an area of refuge complying with Section 1009.6.
3. The accessible route connects to a safe dispersal area in accordance with the exception to Section 1028.5.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
It is not the intent of this proposal to change the requirements for accessible means of egress, but rather to clarify what is expected. This is also updated with new terminology for exit access stairways and ramps.

Ideally everyone should be able to self-evacuate to a public way. However, there are many situations where people who cannot use stairways are on upper floors of buildings; or situations where the slope and size of the site does not allow for an accessible route all the way to a road that is permanently deeded and dedicated to the public (i.e., public way). The primary safety focus is to allow for an accessible route to a location where persons needing assistance and emergency responders can connect. These locations are part of the fire and safety evacuation plans and on building signage so both occupants and emergency responders will be informed.

All the exceptions are in recognition that an accessible route is not possible in some situations. Where a person with mobility impairment gets to a stairway, an elevator that has gone to fire department recall, or an exit discharge that is not accessible, alternative means of rescue or protection must be available. Protection and/or assistance is provided at stairways, elevators with standby power, horizontal exits, areas of refuge and exterior areas for assisted rescue. This is not an exception for access to the public way. This is an exception for an accessible route along the stairway or from the exterior area of assisted rescue. Elevators will be used with fire-department assistance - and are not permitted for self-evacuation during a fire emergency. Horizontal exits also allow for a safe place to wait within a facility till the fire department or other emergency responders can assist.

The following is the purpose of each subsection.

1009.2 - All means of egress must be continuous to a public way. If this route is accessible, than this would constitute an accessible means of egress.

1009.2.1 - Exit access is defined as –

EXIT ACCESS. That portion of a *means of egress* system that leads from any

occupied portion of a building or structure to an *exit*.

The exit access is always required to be accessible. The three items listed are in the current text as Items 1, 6 and 8. If a platform lift is utilized, it has to have battery backup (1009.5) as well as meet the ASME A18.1 safety provisions (1109.7). This route can include exit access ramps. The exception, exit access stairways are listed in the current text as Item 3. The clarification of the exit access stairways only being allowed as part of the accessible means of egress when the serve changes in level of a story or from a mezzanine is consistent with Section 1009.3. Exit access steps within the same level are not permitted to serve as part of the accessible means of egress. Ramps or platform lifts would be required to provide an accessible means of egress.

1009.2.2 - Exit is defined as –

EXIT. That portion of a *means of egress* system between the *exit access* and the *exit discharge* or *public way*. Exit components include exterior exit doors at the *level of exit discharge*, *interior exit stairways* and *ramps*, *exit passageways*, *exterior exit stairways* and *ramps* and *horizontal exits*.

Accessible routes along exits could be exit passageways, exit ramps, exterior exit doorways at the level of exit discharge and horizontal exits (current item 7). Since this list is in the definition, it does not need to be repeated in the text. The exceptions are where people who cannot use the stairways to evacuation can wait for assistance; exit stairways (interior and exterior) and elevators with standby power. Areas of refuge (Item 9) are not listed because they are a requirement directly associated with the exit stairway or elevators in Sections 1009.3 and 1009.4. Depending on their location, they could be part of the exit access or exit. Listing them in both places would be confusing.

1009.2.3 - Exit discharge is defined as –

EXIT DISCHARGE. That portion of a *means of egress* system between the termination of an *exit* and a *public way*.

The accessible route at the level of exit discharge is along the exit discharge can include ramped or level surfaces outside the building. If an accessible route is not possible to the public way, the options are an area of refuge(current item 9), an exterior area of assisted rescue (current Item 10) or a safe dispersal area (permitted in 1028.5).

This proposal was originally brought up as a point of discussion because the current language for exterior areas of assisted rescue has been incorrectly interpreted to say asking people to wait 10 feet away from the building is acceptable, and then a separation is not required. Since you are asking persons with mobility impairments to wait at that location for assistance rather than continually move to the public way, 10 feet is not an acceptable alternative. The 50 feet with safe dispersal area is a system that has worked for assembly facilities for a number of years.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of current requirements; therefore, there is no impact on the cost.

E37-15 : 1009.2-KULIK3333

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This was intended to be a cleanup but it seems to be unnecessarily long. The provisions for exit access ramps should include a reference to Section 1019 as well as Section 1012.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1009.2 Continuity and components. Each required accessible *means of egress* shall be continuous to a *public way.* The *accessible means of egress* shall provide a path of travel along the *accessible route* in accordance with Section 1009.2.1 through 1009.2.3.

1009.2.1 Accessible exit access. The path of travel for exit access shall be along an accessible route and shall consist of one or more of the following components:

1. Accessible routes complying with Section 1104
2. Platform lifts complying with Sections 1009.5 and 1109.7.
3. Exit access ramps complying with Section 1012 and 1019.

Exception: ~~Exit~~ The accessible route for exit access shall be permitted to terminate at exit access stairways between stories and mezzanines and complying with Section 1009.3 and ~~complying~~ with either Section 1019.3 or 1019.4.

1009.2.2 Accessible exits. The path of travel within the exit shall be along an accessible route.
Exceptions: The accessible route within the exit shall be permitted to terminate at any of the following components:

1. Interior exit stairways complying with Sections 1009.3 and 1023.
2. Exterior exit stairways complying with Sections 1009.3 and 1027 and serving levels other than the level of exit discharge.
3. Elevators complying with Sections 1009.4 and 1109.6.
4. Exterior areas of assisted rescue complying with Section 1009.7 serving exits at the level of exit discharge.

1009.2.3 Accessible exit discharge. At the level of exit discharge the path of travel for the exit discharge shall be along an accessible route connecting the exit to the public way.
Exceptions:

1. The accessible route ~~connects~~ for exit discharge shall be

permitted to ~~an~~ terminate at any of the following components:

1.1. An exterior area for assisted rescue complying with Section 1009.7.

1.2. ~~The accessible route connects to an~~ An area of refuge complying with Section 1009.6.

1.3. ~~The accessible route connects to a~~ A safe dispersal area in accordance with the exception to Section 1028.5.

Commenter's Reason: The Building Code Action Committee (BCAC) is requesting approval of this public comment for as modified. The intent of the original proposal was to break up the larger list into elements into the three parts for means of egress – exit access, exit and exit discharge. The MOE development committee felt that more direction was needed. The proposed modification elaborates on the direction so that there is a clearer understanding of the requirements and makes the language consistent for each of the three parts. The modifications address specific concerns raised by the committee in their reason for disapproving the original proposal.

There was a comment from the MOE development committee that the ramp provisions in exit access should reference Section 1019. Since this section addresses exit access ramps, that reference has been added.

There were some other concerns raised that BCAC would like to respond to in this reason statement.

It was suggested that elevators should be allowed for exit access similar to platform lifts. -

At this time, elevators in low rise buildings do not have stand by power, there is no limit on the number of occupants they serve, and they are not intended to be used un assisted during a fire event. Platform lifts have standby power and only serve limited spaces.

It was suggested that new Section 1009.2.3 does not clarify what happens at the level of exit discharge for exits which originate at other floors. -

The general exit provisions require exit stairways and ramps to discharge to the outside or to an exit passageway. Persons on upper floors will be evacuating with assistance, so no special accessibility requirements are needed for the exit discharge serving just the upper floor exits. The intent of Section 1009.2.3 is only for when exit discharge is unassisted and at grade level.

E37-15

E38-15

1009.2.1; (IFC[BE] 1009.2.1)

Proposed Change as Submitted

Proponent : Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Building Code

Revise as follows:

1009.2.1 Elevators required. In buildings where a required *accessible*~~floor~~ story or occupied roof is four or more *stories* above or below a *level of exit discharge*, not less than one required accessible *means of egress* shall be an elevator complying with Section 1009.4.

Exceptions:

1. In buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors provided with a *horizontal exit* and located at or above the *levels of exit discharge*.
2. In buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors provided with a *ramp* conforming to the provisions of Section 1012.

Reason: The language is proposed to be changed to clarify that an occupiable roof must be included where determining the elevator requirement. The existing text is interpretive at best. The proposal makes if clear that if a four story buidling has a roof garden area which the occupants can use, then the elevator to that roof level must be a part of the accessible means of egress.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification. This is how it should be and should have been applied.

E38-15 : 1009.2.1-BOECKER5545

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The provisions for accessible means of egress do not directly address open spaces such as occupied roofs. For example, how could someone do a horizontal exit? What would be the point of an area of refuge on an open roof. A roof is not a story, so would a 4 story building with an occupied roof need standby power?

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1009.2.1 Elevators required. In buildings where a required *accessible* story or occupied roof is four or more *stories* above or below a *level of exit discharge*, not less than one required accessible *means of egress* shall be an elevator complying with Section 1009.4.

Exceptions:

1. In buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors_ provided with a *horizontal exit* and located at or above the *levels of exit discharge*<u>or occupied roofs where the building below is provided with *horizontal exits*.</u>
2. In buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors <u>or occupied roofs</u> provided with a *ramp* conforming to the provisions of Section 1012.
3. <u>In buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required at occupied roofs provided with two remote, enclosed exit stairways conforming to the provisions of Section 1023.</u>

Commenter's Reason: As stated in the original proposal, it makes no sense to ignore people on a roof simply becasue it is a roof - especially if some of the people on the roof have disabilities. Just as many people could be there (or more) than the number of people on the floors below. For this reason the code already recognizes standard means of egress requriements for an occupied roof. The reason that this has a threshold at five stories has to do with the difficulties in an assisted descent down that many stairs. That issue doesn't go away simply because the place where people are located is an occupied roof rather than an enclosed story.
However, as was pointed out during the committee hearings, the roof is open to the air which lends some additional benfits when it comes to assisted egress. By adding an exception for occupied roofs that includes enclosed exit stairways, much of the concern expressed at the committee hearings is removed. The approval of E 151 means that an elevator will be required for access to the occupied roof. Unless the elevator is recalled because something is threatening it, the elevator will remain functional and can be used for egress. If two enclosed exit stairways are also provided, then a reasonable measure of safety can be assumed. Therefore, the exception is a reasonable exchange for the required accessible egress elevator for these four story buidlings with occupied roofs.

The other two existing exceptions had the words "occupied roof" added for consistency.

E38-15

E40-15

1009.7.2; (IFC[BE] 1009.7.2)

Proposed Change as Submitted

Proponent : Lawrence Lincoln, representing Utah Chapter of ICC (larry.lincoln@slcgov.com)

2015 International Building Code

Revise as follows:

1009.7.2 Separation. Exterior walls separating the exterior area of assisted rescue from the interior of the building shall have a minimum *fire-resistance rating* of 1 hour, rated for exposure to fire from the inside. The fire-resistance-rated exterior wall construction shall extend horizontally 10 feet (3048 mm) beyond the landing on either side of the landing or equivalent fire-resistance-rated construction is permitted to extend out perpendicular to the exterior wall 4 feet (1220 mm) minimum on the side of the landing. The *fire-resistance-rated* construction shall extend vertically from the ground to a point 10 feet (3048 mm) above the floor level of the area for assisted rescue or to the roof line, whichever is lower. Openings within such *fire-resistance-rated* exterior walls shall be protected in accordance with Section 716.

> **Exception:** Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

Reason: It seems unreasonable for the IBC to mandate more passive fire protection for a mobility impaired occupant 'that is already located outside of the building' (at the area of assisted rescue) than it does for a mobility impaired occupant that is 'within a building'. IBC section 1009.3 exception #5 allows for the elimination of area of refuges in stairways and IBC section 1009.4 exception #2 allows for the elimination of area of refuges to access elevators when the building is equipped throughout with an automatic fire sprinkler system. On the other hand, a mobility impaired person located at the exterior area of assisted rescue stair landing (already located outside of the building) is afforded the protection of 1-HR fire-resistance rated exterior wall construction and protection of openings as put forth by section 1009.7.2 whether the building is equipped with an automatic sprinkler system or not. This fire sprinkler exception is both logical and reasonable.

Cost Impact: Will not increase the cost of construction
The code change proposal would eliminate the cost of the passive fire resistance rated construction materials required for the exterior area of assisted rescue in buildings that are equipped throughout with an NFPA 13 or NFPA 13R fire sprinkler systems.

E40-15 : 1009.7.2-LINCOLN4114

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: There is no requirement for areas of refuge in a sprinklered building on upper floors. Therefore, for consistency, in a sprinklered building on the level of exit discharge there should not be a requirement for a separation from the interior of the building for an exterior area for assisted rescue. The sprinkler system

provides adequate protection for a trade off. By being outside and protected a person would be protected from smoke and fumes. Therefore the passive protection of the exterior wall is not needed.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Lawrence Lincoln, representing Utah Chapter of ICC (larry.lincoln@slcgov.com) requests Approve as Submitted.

Commenter's Reason: As the proponent for E40-15, I would request that the code committee reaffirm its 'approved as submitted' (AAS) designation for this code change. I also stand behind my original reasoning statement and would invite the members of the code committee to reread that statement.
The submitter for disapproval has indicated that the 2000 IBC and the 2003 IBC do not contain this sprinkler exception and that both of these editions of the IBC are mentioned in section 207 of the 2010 ADA standard. The submitter for disapproval then goes on to imply that approval of this code change may jeopardize the federal government designation of the 2018 edition of the IBC as a 'safe harbor' document. Our code change process 'silently mandates' that we write good/logical code language and that we 'not perpetuate' the contrary. It is my opinion that although this sprinkler exception was not contained within the 2000 and 2003 editions of the IBC, this does not make the 2018 edition of the IBC less safe in one fell swoop. To perpetuate bad/illogical code language/provisions would be a travesty.

Public Comment 2:

Proponent : Adolf Zubia, representing International Association of Fire Chiefs, Fire & Life Safety Section (azubiamia@yahoo.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1009.7.2 Separation. Exterior walls separating the exterior area of assisted rescue from the interior of the building shall have a minimum *fire-resistance rating* of 1 hour, rated for exposure to fire from the inside. The fire-resistance-rated exterior wall construction shall extend horizontally 10 feet (3048 mm) beyond the landing on either side of the landing or equivalent fire-resistance-rated construction is permitted to extend out perpendicular to the exterior wall 4 feet (1220 mm) minimum on the side of the landing. The *fire-resistance-rated* construction shall extend vertically from the ground to a point 10 feet (3048 mm) above the floor level of the area for assisted rescue or to the roof line, whichever is lower. Openings within such *fire-resistance-rated* exterior walls shall be protected in accordance with Section 716.

> **Exception:** ~~Buildings~~ The fire-resistance rating and opening protectives are not required in the exterior wall where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

Commenter's Reason: This Public Comment intends to clarify the exception. The exception itself is unclear since it does not indicate whether the 1 hour construction is not required, or whether the exterior area of assisted rescue is not required. This proposal clarifies that the sprinklers in the building eliminate the need to provide the 1-hour separation, by specifically stating that the 1 hour construction is not required, and the protected openings are not required.

Public Comment 3:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Disapprove.

Commenter's Reason: The ICC Building Code Action Committee requests dissaproval. The code committee approved this change saying it was equivalent to upper floor requirements for accessible means of egress. The exterior area of assisted rescue is to be provided only when an exit cannot include an accessible route to a public way. Disabled persons must wait in this area for first responders to assist them to finish egress after an emergency forces them to leave the building. Exterior areas of assisted rescue are not the same as areas of refuge; they are exterior locations where the space is not protected by sprinklers since there are no overhead locations for mounting sprinklers. The requirements in Section 1027 for exterior exit ramps and stairways do not provide sprinkler exceptions for separations from the interior except for specific egress configurations that afford two ways of egress at certain exterior conditions and which are assumed to have a complete means of egress with exit discharge connected to a public way The new exception will reduce the level of protection required for exterior areas of assisted rescue to be less than what would be required at exterior exit stairways or ramps. With this new exception a disabled person at an exterior area of assisted rescue would have a lower level of protection than a person walking down an exterior exit stair and lower than the protection provided for all occupants using an exterior exit ramp that is connected to a public way where occupants can finish their egress from the building.
In addition, the 2000 IBC (with 2001 Supplement) and the 2003 IBC are referenced by Section 207 of the 2010 ADA for criteria for accessible means of egress. The federal government is currently looking at referencing later editions of the IBC as 'equivalent'. Since the 2000 and 2003 IBC provisions for exterior areas of assisted rescue do not provide an exception for provision of sprinklers if this exception is accepted it could be seen as imposing a lesser requirement than currently in the codes referenced by the 2010 ADA. This could jeopardize the acceptance by the federal government of the 2018 code as equivalent to the older "I' codes.

Public Comment 4:

Proponent : Marsha Mazz, U.S. Access Board, representing U.S. Access Board (mazz@access-board.gov) requests Disapprove.

Commenter's Reason: The committee approved this new exception to the separation requirements for exterior areas of assisted rescue stating that the resulting protection was equivalent to that provided on upper floors within buildings equipped throughout with an automatic sprinkler system. Accessible means of egress on the upper floors of a sprinklered building are not required to provide areas of refuge. However, there is still the option to move into the rated stairway enclosure for persons who cannot use the stairway to exit. A two-way communication system also is required on the upper floors.
Regardless of whether there is fire suppression within the building, smoke does not typically collect in an exterior area for assisted rescue. However, the passive

protection of an exterior wall with a 1 hour rating is still needed in the same way that separation is needed in a stairway. By removing the requirement for separation, a person who cannot continue to the public way by using the stair will potentially be sitting adjacent to the fire with no protection. With the proposed exception, the exterior area of assisted rescue could be located next to a large window or at a loading dock door. In addition, there is no two-way communication requirement for the exterior area for assisted rescue. Consequently, the person who is waiting there has to rely on line-of-sight and the fire and safety evacuation plans to be assisted by the emergency responders.

Lacking justification: The exterior area for assisted rescue is most commonly used at the back exit of a single story building. There were no technical justifications or fire studies, or problems identified with the current requirement in the reason for the original proposal.

ADA Coordination: The 2000 IBC (with 2001 Supplement) and the 2003 IBC are referenced by the 2010 ADA Standards for accessible means of egress. Retaining this exception as submitted would establish a lesser requirement than is currently required by ADA Standards. This could jeopardize the possibility that the Access Board will update its reference to the 2018 IBC.

E40-15

E42-15

1009.8; (IFC[BE] 1009.8)

Proposed Change as Submitted

Proponent : Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

1009.8 Two-way communication. ~~A~~
Where elevators are provided as part of an *accessible means of egress*, a two-way communication system complying with Sections 1009.8.1 and 1009.8.2 shall be provided at the landing serving each elevator or bank of elevators on each accessible floor that is one or more stories above or below the *level of exit discharge*.

Exceptions:

1. Two-way communication systems are not required at the landing serving each elevator or bank of elevators where the two-way communication system is provided within *areas of refuge* in accordance with Section 1009.6.5.
2. Two-way communication systems are not required on floors provided with *ramps* conforming to the provisions of Section 1012.
3. Two-way communication systems are not required at the landings serving only service elevators that are not designated as part of the accessible *means of egress* or serve as part of the required *accessible route* into a facility.
4. Two-way communication systems are not required at the landings serving only freight elevators.
5. Two-way communication systems are not required at the landing serving a private residence elevator.

Reason: Current code requires two-way communication for elevator landings in all buildings two stories or greater, regardless of the design for accessible means of egress. This proposal attempts to tie the requirement for two-way communication to only serve when elevators are provided as a part of the accessible egress.

Section 1009.2.1 only requires elevators to be part of the accessible means of egress when the building has a required accessible floor that is four or more stories above or below the level of exit discharge. In buildings that are less than these limits, the accessible means of egress may be provided by other means, such as stairs, ramps, and other components permitted by Section 1009.2, such that any elevators in such a building are not required to be constructed in accordance with Section 1009.4. Due to the standby requirements in Section 1009.4, designers may choose to not provide accessible egress via the elevator, when permitted to by Section 1009.2.1, instead designing the accessible egress via other components. There is concern that placing the two-way communication in every elevator will lead occupants away from the actual means of egress.

This change is intended to associate the elevator two-way communication system from 1009.8 to elevators that are constructed in accordance with Section 1009.4 to be a part of the accessible route, where such accessible elevators are either

required by Section 1009.2.1, and optioned by the designer in accordance with Section 1009.2.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as the proposal may lead to less installations of two-way communication systems.

E42-15 : 1009.8-DIGIOVANNI3845

Public Hearing Results

Committee Action: Disapproved

Committee Reason: A two way communication system is needed for persons with mobility impairments to be able to communicate with emergency responders on all levels that are accessed by an elevator. Loosing this two-way communication in two, three and four story buildings is a reduction in life safety for persons with mobility impairments who have difficulty or cannot use stairways for evacuation. The location at the elevator lobby is the best location for persons to see the two-way communication system when they enter the building. While the proponents talked about high cost, no cost information was provided.
This is consistent with the committee action on E43-15.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Stephen DiGiovanni, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1009.8 Two-way communication. Where elevators are provided as part of an *accessible means of egress*in accordance with Section 1009.2.1, a two-way communication system complying with Sections 1009.8.1 and 1009.8.2 shall be provided at the landing serving each elevator or bank of elevators on each accessible floor that is one or more stories above or below the *level of exit discharge*.

Exceptions:

1. Two-way communication systems are not required at the landing serving each elevator or bank of elevators where the two-way communication system is provided within *areas of refuge* in accordance with Section 1009.6.5.
2. Two-way communication systems are not required on floors provided with *ramps* conforming to the provisions of Section 1012.
3. Two-way communication systems are not required at the landings serving only service elevators that are not designated as part of the accessible *means of egress* or

serve as part of the required *accessible route* into a facility.

4. Two-way communication systems are not required at the landings serving only freight elevators.
5. Two-way communication systems are not required at the landing serving a private residence elevator.

Commenter's Reason: The purpose of this public comment is to clarify the proposed trigger of when a two-way communication system is required, by specifying the referenced code section that triggers elevators as part of the accessible route.

Current code requires two-way communication for elevator landings in all buildings two stories or greater, regardless of the design for accessible means of egress. This proposal attempts to tie the requirement for two-way communication to only serve when elevators are provided as a part of the accessible egress.

Section 1009.2.1 only requires elevators to be part of the accessible means of egress when the building has a required accessible floor that is four or more stories above or below the level of exit discharge. In buildings that are less than these limits, the accessible means of egress may be provided by other means, such as stairs, ramps, and other components permitted by Section 1009.2, such that any elevators in such a building are not required to be constructed in accordance with Section 1009.4. Due to the standby requirements in Section 1009.4, designers may choose to not provide accessible egress via the elevator, when permitted to by Section 1009.2.1, instead designing the accessible egress via other components. There is concern that placing the two-way communication in every elevator will lead occupants away from the actual means of egress.

This provision for two-way communication assumes that the floor area is not provided with land line telephones, or that the occupant does not carry a cell phone. The process to use the two-way communication system, as indicated in the code, requires that the call first go to a receiver within the building, and after timeout, the call is transferred to a central monitoring company or to 911. For smaller buildings, it may not be accurate to assume that the receiver will be manned. If the receiver is not manned, the call is then timed-out, and the caller is transferred. If the transfer occurs to a central station (which may be reasonable to assume) then that central station would have to place another call, in order to call the fire department. In other words, the two-way communication system could delay response to have three telephone connections, which is slower than if the occupant had been directed to use a land line or cell phone in the first place. In smaller buildings, such as addressed within this proposal, fire responders will likely be able to respond to all floor areas in such an expeditious manner that the benefit of this system would not be realized.

This change is intended to associate the elevator two-way communication system from 1009.8 to elevators that are constructed in accordance with Section 1009.4 to be a part of the accessible route, where such accessible elevators are either required by Section 1009.2.1, or optioned by the designer in accordance with Section 1009.2.

E42-15

E56-15

202 (New), 1010.1.4.4 (New); (IFC[BE] 1010.1.4.4 (New))

Proposed Change as Submitted

Proponent : John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

CONTROL VESTIBULE A space with a door locking arrangement of two doors interconnected such that the first door must close or lock before the second door is openable and unlocked.

Add new text as follows:

1010.1.4.4 Control vestibule. Doors in the means of egress configured as a control vestibule shall provide for emergency egress and shall be subject to approval by the code official.

Reason: Control vestibules (interlocked doors) are being installed. The code currently is silent regarding requirements for doors in the means of egress configured as a control vestibule. The configuration of control vestibules which provide for ingress control (access control) is outside the scope of the IBC. However, egress MUST be provided for, and how egress is provided with control vestibules should be subject to approval by the AHJ.

Cost Impact: Will not increase the cost of construction
No cost increase. Control vestibules are not required by the code.

E56-15 : 1010.1.4.4 (New)-WOESTMAN5535

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Requirements for control vestibules are needed because these types of systems are being provided. Sallyports are already addressed in Group I-3. Where these types of systems are provided should be limited. Perhaps the door system needs to have an over ride connected to the fire alarm system. The proposed text is currently too open ended and should be further defined so that enforcement is consistent.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : John Woestman, Kellen, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

CONTROL VESTIBULE A space with a door locking arrangement of ~~two~~ interlocked doors ~~interconnected~~ such that ~~the first~~ while one door ~~must close or lock before~~ of the ~~second door~~ vestibule is ~~openable and unlocked~~ open all other doors are locked temporarily.

1010.1.4.4 Control vestibule. Doors in the means of egress configured as a control vestibule shall provide for emergency egress and shall be subject to approval by the code official. Control vestibules in the means of egress shall comply with all of the following.

1. Locking arrangements on each door of a control vestibule shall comply with Section 1010.1.9.
2. An *approved* override shall be provided on the egress side of each door of a control vestibule.
3. An *approved* override shall be provided on the ingress side of the outer door of a control vestibule.
4. Upon activation of the automatic sprinkler system or automatic fire alarm system on the egress side of the control vestibule, the interlock function of the two doors of the control vestibule shall deactivate.
5. Upon loss of power to the interlock function of the doors, the interlock function of the two doors of the control vestibule shall deactivate.

Commenter's Reason: Addressing the committee reasons for disapproval, we are proposing a revised definition for "control vestibule" and proposing detailed requirements for control vestibules. The significant difference between two doors in the means of egress in series (i.e. one after the other) and doors in the means of egress configured as a control vestibule is the doors of a control vestibule are interlocked such that when one door of a control vestibule is open, all other doors of the control vestibule are temporarily locked; and conversely, in the means of egress when all doors of a control vestibule are closed, any one door may be opened. Control vestibules are most commonly configured as a space with two doors (in series). But, some control vestibules are configured with more than one inner door and / or more than one outer door, with all doors opening into the vestibule. For example, where a control vestibule is required to help keep clean rooms clean, there may be inner doors from three different clean rooms opening into the control vestibule, and one outer door for leaving the control vestibule in the direction of egress.

Item 1: A needed requirement to address the potential situation where one of the doors on the control vestibule is propped open (example: a person faints at the outer door), other occupants may need to be able to egress through the control vestibule, especially in emergency situations. It is common the activation of an override would set off an alarm, and / or the activation of an override without a valid reason results in disciplinary action (i.e. employee gets fired).

Item 2: In the event the inner door of a control vestibule is propped open (example: a

person faints at the inner door), an override allows access into the control vestibule. The required override on the ingress side of the outer door allows for emergency access into the control vestibule, if needed. This override commonly requires a higher level of authorization for use and / or is provided for responding emergency crews.

Items 3 and 4: Requires the interlock function to be disabled in the event of fire, actuation of the fire detection system, or power loss to the interlock system.

Item 5 requires that egressing through the control vestibule involves no more than two doors, unless approved by the code official. While not common, there are situations where more than one control vestibule may be needed in the means of egress.

Item 6 requires the units of the control vestibule locking system to be listed in accordance with UL 294, the same standard required for units for other electrical locking system units.

Together, the revised definition and proposed requirements provide for egress and emergency egress where control vestibules are installed.

E56-15

E57-15 Part I

202 (New), 1010.1.4.4 (New), 1010.1.4.4.1 (New); (IFC[BE] 1010.1.4.4 (New), 1010.1.4.4.1 (New))

Proposed Change as Submitted

Proponent : John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

CREDENTIAL. A tangible object, knowledge, or human physical characteristic required for locking and unlocking. A key to operate a lock cylinder; a magnetic card to swipe in a magnetic card reader; knowledge of a specific code for keypad operations; and a fingerprint for a fingerprint scanner; are examples of credentials, and their potential uses.

Add new text as follows:

1010.1.4.4 Group E classrooms. In Group E occupancies, classroom doors shall be lockable from within the classroom without opening the classroom door. All the following conditions shall apply:

1. The classroom door shall be unlockable and openable from within the classroom and shall comply with Section 1010.1.9.
2. The classroom door shall be unlockable and openable from outside the classroom by the use of a key or other credential.

1010.1.4.4.1 Remote operation of locks. Remote operation of locks complying with Section 1010.1.4.4 shall be permitted.

Reason: Many jurisdictions have taken measures to address the high priority concern of safety of occupants in K-12 classrooms in the event of a threatening situation. While well-intended and likely to have a degree of positive impact, these actions create disparate requirements from jurisdiction to jurisdiction, and some actions may inadvertently compromise certain aspects of life safety while attempting to address others.
This proposal for the IBC provides requirements which balance the challenges of providing protection for students and teachers in the classroom with that of free and immediate egress at all times without use of keys, tools, or special knowledge.

In addition to the security concerns, classroom doors are required to meet accessibility requirements which include door operating hardware configuration and location, door hardware operational forces, and a smooth surface of the bottom 10" of the push side of the door.

Door locksets with "classroom security function" are readily available today at the same cost as traditionally-used "classroom function" door locksets. The most common configuration of a classroom security function lockset is the ability to lock the door from inside the classroom with a key preventing entry to the classroom; and for egress, the door may be unlatched and opened from inside the classroom without a key by rotating the lever handle. On the outside of the classroom, consistent with tradition, the door may be locked with a key, and unlocked and

opened with a key.

This code change proposal will require all Group E classroom doors to be lockable from the inside of the classroom preventing entry to the classroom, without the need to open the door. This proposal does not prescribe specifically how the door is to be lockable from inside the classroom.

Additional requirements are the door is to be unlockable and readily openable inside the classroom without the use of a key or special knowledge or effort, as required in IBC Section 1010.1.9. Subsections of 1010.1.9 include requirements for hardware height (between 34 and 48 inches above the floor), and for hardware configuration (for doors required to be accessible, which would be almost all classroom doors, the door operating hardware shall not require tight grasping, tight pinching or twisting of the wrist to operate). An additional requirement of this proposal is the classroom door is to be unlockable and openable from outside the classroom by a key or other lock credential.

Cost Impact: Will not increase the cost of construction
No cost impact. Door locksets with the classroom security function are the same cost as traditionally specified door hardware locksets (with the classroom function).

E57-15 Part I : 1010.1.4.4 (New)-WOESTMAN5537

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: Criteria for Group E classrooms to lock down safely is needed. Types of devices that are blocking devices that do not allow for unlocking from the outside are currently being used and are a safety hazard. However, the committee strongly felt that this should be an option, not a requirement. There should be correlation with the signage requirement in Section 1010.1.9.3. The definitions in the IBC and IEBC should match – change 'and' to 'or' in the last sentence.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

~~**CREDENTIAL.** A tangible object, knowledge, or human physical characteristic required for locking and unlocking. A key to operate a lock cylinder; a magnetic card to swipe in a magnetic card reader; knowledge of a specific code for keypad operations; and a fingerprint for a fingerprint~~

~~scanner; are examples of credentials, and their potential uses.~~

1010.1.4.4 ~~Group E classrooms.~~ Locking arrangements in educational occupancies. In Group E and Group B educational occupancies, egress doors from classrooms, offices and other occupied rooms shall be permitted to be provided with locking arrangments designed to keep intruders from entering the room where all of the following conditions are met: ~~In Group E occupancies, classroom doors shall be lockable from within the classroom without opening the classroom door. All of the following conditions shall apply:~~

1. ~~The classroom door shall be unlockable and openable from within the classroom and shall comply with Section 1010.1.9.~~
2. ~~The classroom door shall be unlockable and openable from outside the classroom by the use of a key or other credential.~~

1. The door shall be capable of being unlocked from outside the room with a key or other approved means.
2. The door shall be openable from within the room in accordance with Section 1010.1.9.
3. Modifications shall not be made to listed panic hardware, fire door hardware or door closers.

1010.1.4.4.1 Remote operation of locks. Remote operation of locks complying with Section 1010.1.4.4 shall be permitted.

Commenter's Reason: This public comment addresses the committee comments as follows.
"Criteria for Group E classrooms to lock down safely is needed. Types of devices that are blocking devices that do not allow for unlocking from the outside are currently being used and are a safety hazard." Comment – We agree and this public comment addresses these concerns.
"However, the committee strongly felt that this should be an option, not a requirement." The original proposal mandated that locks had to be provided on all classroom doors, period. This decision should be the responsibility of the school administration in consultation with local security, law enforcement and emergency responders. This public comment does not mandate that locks be provided on classrooms, but describes the safety features they should have if provided for intruder protection.
"There should be correlation with the signage requirement in Section 1010.1.9.3." Addressed – A requirement was added that the door must be openable from within the room in accordance with Section 1010.1.9. the public comment does not allow locking arrangements to impede the egress aspects of the door, e.g. no double deadbolts.
"The definitions in the IBC and IEBC should match – change 'and' to 'or' in the last sentence." Accomplished, did not add a definition of "Credential" with the public comment, and the last sentence was not included in the public comment.
This public comment addresses a real danger facing schools today, addresses all of the concerns raised by the committee, and is consistent with the provisions in our EB 23-15 public comment.

E57-15 Part I

E57-15 Part II

202 (New), 406 (New), 406.1 (New), 406.2 (New), 406.2.1 (New), 704.2 (New), 704.2.1 (New)

Proposed Change as Submitted

Proponent : John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Existing Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

CREDENTIAL. A tangible object, knowledge, or human physical characteristic required for locking or unlocking. A key to operate a lock cylinder; a magnetic card to swipe in a magnetic card reader; knowledge of a specific code for keypad operations; and a fingerprint for a fingerprint scanner; are examples of credentials, and their potential uses.

Add new text as follows:

SECTION 406 MEANS OF EGRESS

406.1 General. Alterations shall be such that the existing building or structure is no less conforming to the provisions of the International Building Code than the existing building or structure was prior to the alteration.

406.2 Existing occupany Group E classrooms. In Group E occupancies, existing classroom doors shall be lockable from within the classroom without opening the classroom door. All the following conditions shall apply:

1. The classroom door shall be unlockable and openable from within the classroom and shall comply with Section 1010.1.9. of the International Building Code.
2. The classroom door shall be unlockable and openable from outside the classroom by the use of a key or other credential.

406.2.1 Remote operation of locks. Remote operation of locks complying with 406.2 shall be permitted.

704.2 Group E occupancy classroom. In Group E occupancies, classroom doors shall be lockable from within the classroom without opening the classroom door. All the following conditions shall apply:

1. The classroom door shall be unlockable and openable from within the classroom and shall comply with Section 1010.1.9. of the International Building Code.
2. The classroom door shall be unlockable and openable from outside the classroom by the use of a key or other credential.

704.2.1 Remote operation of locks. Remote operation of locks

complying with 704.2 shall be permitted.

Reason: Many jurisdictions have taken measures to address the high priority concern of safety of occupants in K-12 classrooms in the event of a threatening situation. While well-intended and likely to have a degree of positive impact, these actions create disparate requirements from jurisdiction to jurisdiction, and some actions may inadvertently compromise certain aspects of life safety while attempting to address others.
This proposal for the IEBC provides guidance which balances the challenges of providing protection for students and teachers in the classroom with that of free and immediate egress at all times without use of keys, tools, or special knowledge.

In addition to the relatively recent demand to protect students and teachers from outside-the-classroom threats, many classroom doors are required to function as fire-rated doors (opening protectives); and fire-rated doors are required to be always self-latching when closed to ensure the doors perform its fire protection function in the event of a fire. Additionally, classroom doors are required to meet accessibility requirements which include door operating hardware configuration and location, door hardware operational forces, and a smooth surface of the bottom 10" of the push side of the door.

This code change proposal will not require existing Group E classroom doors to be lockable from the inside of the classroom without the need to open the door. This proposal does provide guidance if modifications are made to the door in an effort to control access to the classroom.

This proposal does not prescribe specifically how the door is to be lockable from inside the classroom.
Additional requirements are the door is to be unlockable and readily openable inside the classroom without the use of a key or special knowledge or effort, as required in IBC Section 1010.1.9. Subsections of IBC 1010.1.9 include requirements for hardware height (between 34 and 48 inches above the floor), and for hardware configuration (for doors required to be accessible, which would be almost all classroom doors, the door operating hardware shall not require tight grasping, tight pinching or twisting of the wrist to operate). An additional requirement of this proposal is the classroom door is to be unlockable and openable from outside the classroom by a key or other lock credential.

If the door locking hardware is under consideration for replacement, door locksets with "classroom security function" are readily available today at essentially the same cost as traditionally-used "classroom function" door locksets. The most common configuration of a classroom security function lockset is the ability to lock the door from inside the classroom with a key preventing entry to the classroom; and for egress, the door may be unlatched and opened from inside the classroom without a key by rotating the lever handle. On the outside of the classroom, consistent with tradition, the door may be locked with a key, and unlocked and opened with a key.

Cost Impact: Will not increase the cost of construction
This proposal does not require retrofitting of existing doors with new hardware. IF door locking hardware replacement is being considered, the requirements of this proposal provide guidance.

E57-15 Part II : 406 (New)-WOESTMAN5538

Public Hearing Results

Part II

Committee Action: Approved as Submitted

Committee Reason: Though there were some concerns with the mandatory verbiage used, provisions dealing with the ability to safely lockdown within a

classroom are needed. The committee suggested that this proposal should not be limited to Group E occupancies as these safety concerns exist in other occupancies. Note that proposal EB23-15 deals with a similar topic.

Assembly Motion: Disapprove
Online Vote Results: Successful
Support: 67.72% (235) Oppose: 32.28% (112)
Assembly Action : Disapproved

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action

requests Disapprove.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Disapprove was successful by a vote of 67.72% (235) to 32.28% (112) by eligible members online during the period of May 14 - May 28, 2015.

Public Comment 2:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Disapprove.

Commenter's Reason: We like what the proponent was trying to accomplish with this proposal but prefer the approach used in EB 23-15, with or without the clarification provided in our public comment. One reason for this preference is that E 57-15, part 2 mandates that classroom doors be provided with locks, which could be a significant expense for school districts, and may not be warranted based on other security measures adopted in individual schools.
In comparison EB 23-15 does not require retrofitting of classroom doors with locks, but if the school district chooses to retrofit doors with locks it provides requirements on how it can be safely done.

Public Comment 3:

Proponent : Region VII, representing ICC Region VII requests Disapprove.

Commenter's Reason: The committee itself had concerns in regards to mandatory language and that it should not be limited to Group E occupancies. Note part 1 of this same change was not approved and a successful assembly motion for disapproval was overwhelmingly successful.

E57-15 Part II

E58-15

202(New), 1010.1.2, 1010.1.4.5 (New); (IFC[BE] 1010.1.2, 1010.1.4.5 (New))

Proposed Change as Submitted

Proponent : Joseph Hetzel, representing Door & Access Systems Manufacturers Association (Jhetzel@thomasamc.com)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

HIGH SPEED DOOR. A non-swinging door with a minimum opening rate of 32 inches per second, a minimum closing rate of 24 inches per second, and an automatic closing device.

Add new text as follows:

1010.1.4.5 High speed doors In other than Groups A, E and H occupancies, high speed door assemblies permitted to serve as a component of a means of egress in accordance with Exception 10 to Section 1010.1.2 shall comply with at least one of the following criteria:

1. The door shall be openable by a simple method from either side of the opening without special knowledge or effort. The force required to operate the door shall not exceed 30 pounds (133 N) to set the door in motion.
2. The door assembly shall have an integrated standby power supply, shall be electrically supervised, and shall open to a minimum height of 80 inches (2.03 m) within 10 seconds after activation of the operating device.
3. The door panels shall be capable of being broken out manually in the event of power failure by a simple method from both sides without special knowledge or effort. A minimum 32-inch (813 mm) wide by 80-inch (2.03 m) high opening shall be capable of being provided when the door panels are broken out. The force required to break out the door panels shall not exceed 30 pounds (133 N).

Revise as follows:

1010.1.2 Door swing. Egress doors shall be of the pivoted or side-hinged swinging type.

Exceptions:

1. Private garages, office areas, factory and storage areas with an *occupant load* of 10 or less.
2. Group I-3 occupancies used as a place of detention.
3. Critical or intensive care patient rooms within suites of health care facilities.
4. Doors within or serving a single *dwelling unit* in Groups R-2

and R-3.

5. In other than Group H occupancies, revolving doors complying with Section 1010.1.4.1.
6. In other than Group H occupancies, special purpose horizontal sliding, accordion or folding door assemblies complying with Section 1010.1.4.3.
7. Power-operated doors in accordance with Section 1010.1.4.2.
8. Doors serving a bathroom within an individual *sleeping unit* in Group R-1.
9. In other than Group H occupancies, manually operated horizontal sliding doors are permitted in a *means of egress* from spaces with an *occupant load* of 10 or less.
10. <u>In other than Group A, E and H occupancies, high speed doors complying with Section 1010.1.4.5.</u>

Reason: High speed doors, typically designed as nonswinging doors, have been successfully installed as egress doors. They are often used in locations where pivoted or side-hinged swinging doors are not present.
In order to be found compliant with the IBC other than using the Alternative Methods provisions, high speed doors should be included as an Exception to side-hinged or swinging doors. The exclusion from Groups A, E and H is consistent with the limitation currently applied to using delayed egress locking systems.

The definition proposed for the term "high speed door" is similar in description of action to the definition of the term as contained in the International Energy Conservation Code.

The three options are commonly and successfully used by the high speed door industry where such doors are a component of a means of egress. The requirements in each option are similar to those listed in Section 1010.1.4.3 for special purpose horizontal sliding, accordion and folding door assemblies. Each option is viable in itself, but only one is needed from a cost/benefit standpoint.

Cost Impact: Will not increase the cost of construction
We believe the proposed change is consistent with common current practice and therefore only permits what is already being done. Since it is already being done, there is no effect on product or cost and therefore requires no further study.

E58-15 : 1010.1.2-HETZEL4785

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There are several terms that are undefined and unclear: such as 'openable by simple method', 'electrically supervised system', 'operating device'. These types of overhead doors are not appropriate as a means of egress door for a potentially large occupant loads in any occupancy. Regarding the 30 pounds force for opening, it is not clear on which direction this force would be applied.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Joseph Hetzel, representing Door & Access Systems Manufacturers Association (Jhetzel@thomasamc.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

HIGH SPEED FABRIC DOOR. A non-swinging fabric door with a minimum opening rate of 32 inches per second, a minimum closing rate of 24 inches per second, and an automatic closing device.

1010.1.4.2 Power-operated doors. Where *means of egress* doors are operated or assisted by power, the design shall be such that in the event of power failure, the door is capable of being opened manually to permit *means of egress* travel or closed where necessary to safeguard *means of egress*. The forces required to open these doors manually shall not exceed those specified in Section 1010.1.3, except that the force to set the door in motion shall not exceed 50 pounds (220 N). The door shall be capable of swinging open from any position to the full width of the opening in which such door is installed when a force is applied to the door on the side from which egress is made. Power-operated swinging doors, power-operated sliding doors and power-operated folding doors shall comply with BHMA A156.10. Power-assisted swinging doors and low-energy power-operated swinging doors shall comply with BHMA A156.19.

Exceptions:

1. Occupancies in Group I-3.
2. Horizontal sliding doors complying with Section 1010.1.4.3.
3. For a biparting door in the emergency breakout mode, a door leaf located within a multiple-leaf opening shall be exempt from the minimum 32-inch (813 mm) single-leaf requirement of Section 1010.1.1, provided a minimum 32-inch (813 mm) clear opening is provided when the two biparting leaves meeting in the center are broken out.
4. In other than Group A, E or H occupancies, high speed fabric door assemblies shall be permitted to serve as as a compnent of a means of egress where the door is capable of being opened manually, or broken out, by a simple method from both sides without special knowledge or effort in the event of power failure. For manual operation, the force shall not exceed 30 pounds (133 N) to set the door in motion and 15 pounds (67 N) to open the door to the minimum required height and width. The force required to break out the door shall not exceed 50 pounds (220 N).

Commenter's Reason:

- An exception for high speed fabric doors should be in the category "power-operated doors" since this is the best fit in the code with respect to the other types of doors addressed in the Egress chapter.
- From a manual standpoint, either opening or breaking out a door should be

allowed for high speed fabric doors. In addition to the need for vertically "rolling up" the door, the need for breakout is common due to accommodating the risk of moving equipment making accidental contact with a door.

- A "break out" feature is also commonly provided in a high speed fabric door for the purpose of egress to create an adequate opening faster than the commonly designed upward motion of such door.
- Because of upward movement when opening a high speed fabric door, language addressing both the minimum required height and width is noted in the Exception.
- High speed fabric doors are installed in non-rated walls, so closing the opening after breakout or door opening is not needed from a fire protection/resistance standpoint.
- The maximum operating forces are consistent with those for special purpose horizontal sliding, accordion or folding doors as noted in Section 1010.1.4.3.
- The maximum breakout force proposed is consistent with the ANSI/BHMA A156 set of standards.

E58-15

E63-15

1010.1.9.3; (IFC[BE] 1010.1.9.3)

Proposed Change as Submitted

Proponent : Lee Kranz, City of Bellevue, WA, representing The City of Bellevue Washington

2015 International Building Code

Revise as follows:

1010.1.9.3 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.
2. In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
    - 2.1. The locking device is readily distinguishable as locked.
    - 2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
    - 2.3. The use of the key-operated locking device is revokable by the *building official* for due cause.
3. Where egress doors are used in pairs, *approved* automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts does not have a doorknob or surface-mounted hardware.
4. Doors from individual *dwelling* or *sleeping units* of Group R occupancies having an *occupant load* of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.
5. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed fire door* test procedures.
6. <u>Required egress doors serving outdoor areas, other than egress courts, having an occupant load of 300 or less where occupants must use one or more exits or exit access doors to egress through the building are permitted to be equipped with key-operated or thumb-turn lever locking devices. The locking device shall be installed and operated in accordance with all of the following:</u>
    - 6.1. <u>For other than Group R occupancies, the locking device shall be readily distinguishable as locked.</u>
    - 6.2. <u>A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) in area, shall be provided in the wall separating the inside of the building from the outdoor area to allow visual confirmation to determine if there are occupants using the outdoor area. The</u>

minimum net clear opening height dimension shall be 24 inches (610 mm). The minimum net clear opening width dimension shall be 20 inches (508 mm). The center of the glazed opening shall be located 48 inches (1220 mm) to 60 inches (1525 mm) above the finished floor level.

6.3. For other than Group R occupancies, a readily visible durable sign is posted on the interior side on or adjacent to the required egress door or doors serving the outdoor area stating: THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED. The letters on the sign shall be not less than 1 inch (25 mm) high on a contrasting background.

6.4. The door hardware shall not be capable of locking or unlocking except by the use of a key or thumb-turn lever.

6.5. The use of key-operated or thumb-turn lever locking devices is revocable by the building official for due cause.

Reason: All outdoor areas that are accessible to and usable by the building occupants, where people must use one or more required exits or exit access doors to re-enter the building, are considered for means of egress purposes to be the same as any occupied room in the building and therefor be provided with free egress at all times. Doors serving outdoor areas must remain unlocked at all times to permit safe egress. To insure security for their building or tenant space, owners and tenants typically want to have locks to be installed on required egress doors serving outdoor areas, even on levels above and below the level of exit discharge. This proposal adresses the issue by allowing these required egress doors to be locked for security purposes as long as all of the listed conditions are met. The proposed code change will apply to all outdoor areas where occupants must egress through the building, including those located at the level of exit dischare and those above or below the level of exit discharge. Group R occupancies are not required to provide distinguishable locks or interior signage as required for all other occupancies.
Important required elements include:

1. a vision panel that would allow someone on the inside of the building to see if there are people using the outside area to reduce the potential for doors serving outdoor areas to be locked,
2. signage on the interior side indicating that the door(s) must remain unlocked when people are using the outdoor area, and
3. the requirement to use door hardware that will prevent the door from accedently locking when someone goes outside.

Cost Impact: Will not increase the cost of construction
Locks are being placed on doors serving outdoor areas illegally. This proposal provides an avenue to install the locks legally as long as certain conditions are met. It should not impact the cost of construction.

E63-15 : 1010.1.9.3-KRANZ4469

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The scope of this seems to be all occupancies, but then Item 6.1 exempts Group R. Is this meant to imply that Group R cannot use this allowance? The new provisions in Item 6 seem to be the same as Item 2. Why the differences. This could be used to address outside pools or decks. Could Item 6.4 allowance for a thumb turn allow for someone to inadvertently locked outside? Perhaps that option needs to be limited to Group R private areas only? The mix of vision panel and door opening is confusing.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Lee Kranz, City of Bellevue, WA , representing City of Bellevue, Washington (lkranz@bellevuewa.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1010.1.9.3 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.
2. In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
    - 2.1. The locking device is readily distinguishable as locked.
    - 2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
    - 2.3. The use of the key-operated locking device is revokable by the *building official* for due cause.
3. Where egress doors are used in pairs, *approved* automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts does not have a doorknob or surface-mounted hardware.
4. Doors from individual *dwelling* or *sleeping units* of Group R occupancies having an *occupant load* of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.
5. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed fire door* test procedures.
6. ~~Required~~ <u>For other than Group R occupancies, required</u> egress doors serving outdoor areas, other than egress courts, having an

occupant load of 300 or less where occupants must use one or more exits or exit access doors to egress through the building are permitted to be equipped with key-operated or thumb-turn ~~lever~~ locking devices. The locking device shall be installed and operated in accordance with all of the following:

6.1. ~~For other than Group R occupancies, the~~ The locking device shall be readily distinguishable as locked.

6.2. ~~A clear window~~ Clear windows or glazed door ~~opening, not less than 5 square feet (0.46 m^2) in area,~~ openings shall be provided as needed in the wall separating the inside of the building from the outdoor area to allow visual confirmation ~~to determine if there are~~ of occupants using the outdoor area. ~~The minimum net clear opening height dimension shall be 24 inches (610 mm). The minimum net clear opening width dimension shall be 20 inches (508 mm). The center of the glazed opening shall be located 48 inches (1220 mm) to 60 inches (1525 mm) above the finished floor level.~~

6.3. ~~For other than Group R occupancies, a~~ A readily visible durable sign is posted on the interior side on or adjacent to the required egress door or doors serving the outdoor area stating: THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED. The letters on the sign shall be not less than 1 inch (25 mm) high on a contrasting background.

6.4. Door hardware shall not be permitted to automatically lock required egress doors when the door closes. The door hardware shall not be capable of locking or unlocking except by the use of a key or thumb-turn lever.

6.5. ~~The use of key-operated or thumb-turn lever locking devices is revocable by~~ Doors required to have panic hardware are permitted to be locked from the ~~building official for due cause~~ egress side in accordance with Section 1010.1.9.3, Item 2.

Commenter's Reason: Section 1004.5 requires that outdoor areas accessible to and usable by the building occupants be provided with means of egress per Chapter 10. Section 1010.1.9 specifies that egress doors serving outdoor areas be readily openable from the egress side without the use of a key or any special knowledge or effort. Currently there is no exception to these requirements but yet there are many cases of these doors being locked for building security and to prevent intrusion. This public comment includes some changes recommended by the Egress Committee as well as those who testified in opposition to the original code change. One of the comments related to the application of these provisions to Group R occupancies. A proposal similar to this one was submitted in the previous Group A Code Cycle and was disapproved because it was felt that doors serving residentlal decks would be required to comply with all of the aspects of item 6. Therefor, doors serving outdoor areas in R-1, R-2 & R-3 occupancies are not required to comply with these provisions but must comply with Section 1010.1.9.3, item #4.

It was also suggested that since panic hardware is required if the occupant load of the outdoor area exceeds 50 that language be added to reference Section 1010.1.9.3, item 2 to allow the doors to be locked when the outdoor area is not in use. This issue has been resolved with new text in item 6.5.

E64-15

1010.1.9.5.1 (IFC[BE] 1010.1.9.5.1)

Proposed Change as Submitted

Proponent : Carl Baldassarra, P.E., FSFPA, P.E., FSFPE, Chair, ICC Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Delete without substitution:

~~**1010.1.9.5.1 (IFC[BE] 1010.1.9.5.1) Closet and bathroom doors in Group R-4 occupancies.** In Group R-4 occupancies, closet doors that latch in the closed position shall be openable from inside the closet, and bathroom doors that latch in the closed position shall be capable of being unlocked from the ingress side.~~

Reason: This is proposed to be deleted because it is an inconsistent requirement. If there is a concern that a person receiving custodial care might lock themselves in a bathroom or closet, this should be required in Group I-1, not just Group R-4. Also, this should not be a overall minimum code requirement, but more an option for a facility to provide where needed. Literally this would applied to storage closets that are not used by residents and closets that you would not walk into at all.
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is eliminating a requirement for locks.

E64-15 : 1010.1.9.5.1-BALDASSARRA4278

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: While this might be a valid concern in some facilities for safety, the current provisions should not be applicable to just Group R-4. Free egress from occupied spaces is already required by the code. The current language could be read to apply to all closets, including reach-in closets.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : John Woestman, Kellen, representing Builders Hardware Manufacturers Association (jwoestman@kellencompany.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1010.1.9.5.1 Closet doors. Closet doors that latch in the closed position shall be openable from inside the closet.

Commenter's Reason: This public comment retains portions of the text proposed by the original proposal to be deleted. Closets with a door that latches are commonly large enough for a person to get inside, especially a child. To reduce the potential of a person getting trapped inside a closet, closet doors should be able to be unlatched from the inside.
This situation reminds me of the tragedies associated with (very) old refrigerators with doors equipped with mechanical latches – that's most household refrigerators manufactured prior to the Federal "Refrigerator Safety Act" of 1956 which required household refrigerators to be openable from the inside with a force of no more than 15 pounds. Too many children died when trapped inside these refrigerators. Before the use of magnetic sealing of refrigerator doors, refrigerator doors were held shut by mechanical latches. These mechanical latches usually did not have a means for unlatching the door from the inside of the refrigerator.

E64-15

E66-15

1010.1.9.7; (IFC[BE] 1010.1.9.7)

Proposed Change as Submitted

Proponent : James Peterkin (jpeterki@heery.com)

2015 International Building Code

Revise as follows:

1010.1.9.7 Delayed egress. Delayed egress locking systems shall be permitted to be installed on doors serving any occupancy except Group A, E and H in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approvedautomatic smoke* or *heat detection system* installed in accordance with Section 907.

> **Exception:** Delayed egress locking systems shall be permitted to be installed on doors serving courtrooms within a Group A occupancies that are in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

1010.1.9.7.1 Delayed egress locking system. The delayed egress locking system shall be installed and operated in accordance with all of the following:

1. The delay electronics of the delayed egress locking system shall deactivate upon actuation of the *automatic sprinkler system* or *automatic fire detection system*, allowing immediate, free egress.
2. The delay electronics of the delayed egress locking system shall deactivate upon loss of power controlling the lock or lock mechanism, allowing immediate free egress.
3. The delayed egress locking system shall have the capability of being deactivated at the f*ire command center* and other *approved* locations.
4. An attempt to egress shall initiate an irreversible process that shall allow such egress in not more than 15 seconds when a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the delay electronics have been deactivated, rearming the delay electronics shall be by manual means only.
   Exception: Where approved, a delay of not more than 30 seconds is permitted on a delayed egress door.
5. The egress path from any point shall not pass through more than one delayed egress locking system.
   Exception: In Group I-2 or I-3 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided the combined delay does not exceed 30 seconds.
6. A sign shall be provided on the door and shall be located above and within 12 inches (305 mm) of the door exit hardware:
   6.1. For doors that swing in the direction of egress, the sign

shall read: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.

6.2. For doors that swing in the opposite direction of egress, the sign shall read: PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.

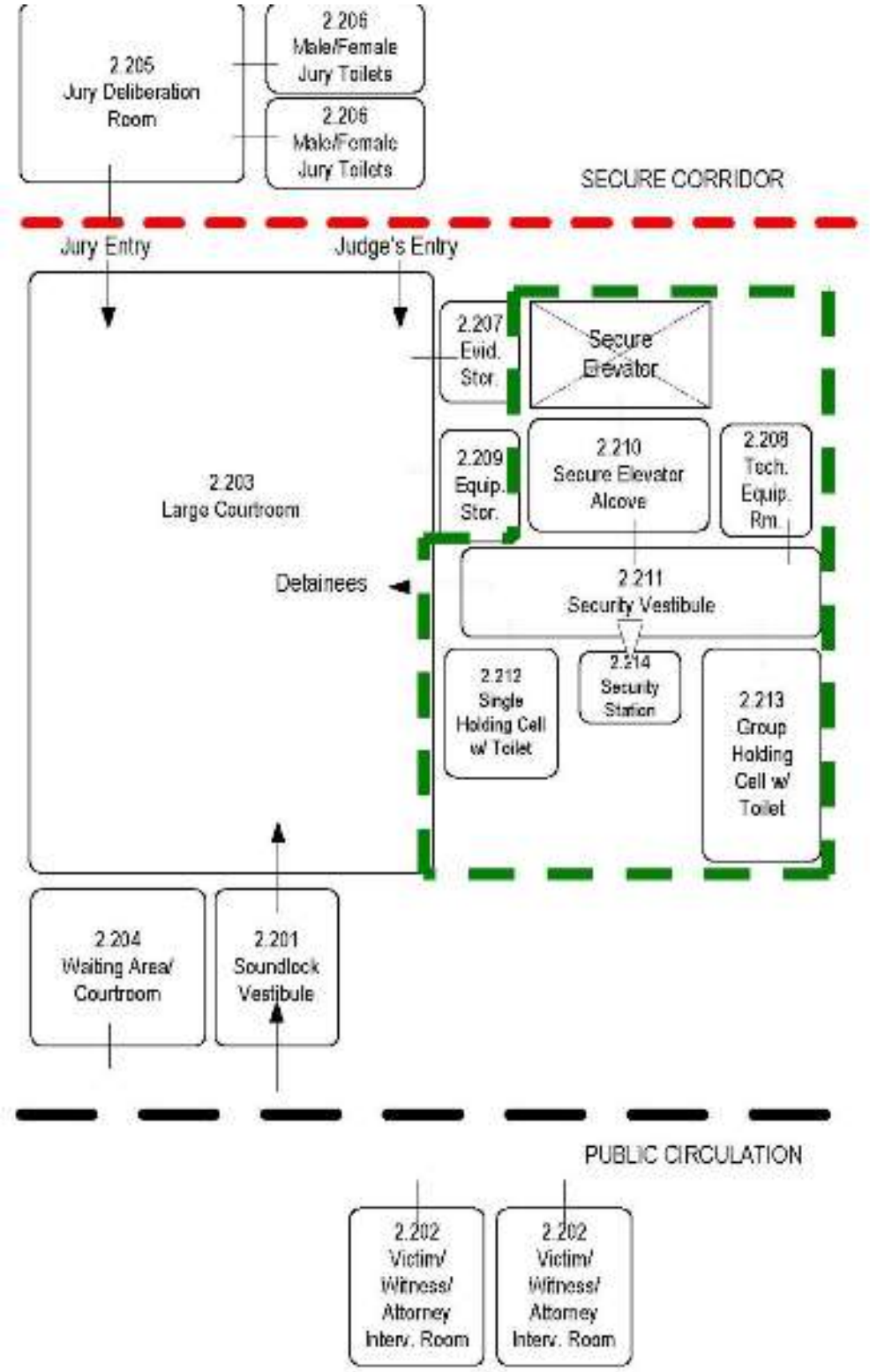
6.3. The sign shall comply with the visual character requirements in ICC A117.1.

Exception: Where approved, in Group I occupancies, the installation of a sign is not required where care recipients who because of clinical needs require restraint or containment as part of the function of the treatment area.

7. Emergency lighting shall be provided on the egress side of the door.
8. The delayed egress locking system units shall be listed in accordance with UL 294.

Reason: A courthouse is a unique building type that is designed with three separate and distinct circulation systems – one for the public, one for the judiciary/secure staff, and one for in-custody inmates. The three circulation systems are segregated and they only meet in a single location, the courtrooms. The public enter the courtroom from the public corridor, the judges and court staff enter from the rear secure staff corridor and the prisoners enter from the holding area at the side. Because these groups must be kept separate for security reasons, it is necessary to lock the doors where these groups interface to prevent intermixing.
Standard courtroom design provides free egress for the public out the back of the courtroom with enough egress capacity to handle the entire occupant load of the courtroom. Doors leading to the prisoner interface are locked and fail secure, which is allowed by code. Since the courtrooms have an occupant load greater than 50 (up to approximately 120), these rooms are considered an "assembly occupancy" and require a second means of egress.

Industry practice has been to utilize the exit in the front of the courtroom as the second means of egress. This egress ogenerally also serves as the entrance/egress for the judge and court staff. (Please refer to the attached functional diagram).



Large Courtroom Functional Diagram

To maintain the security separation of occupants, it is industry practice to equip this second means of egress with a delayed egress device which prevents any unauthorized person from gaining access to the secure staff areas.

A courtroom, unlike many other assembly occupancies, is a controlled environment. A bailiff is located within the courtroom when occupied by the public and/or prisoners. The bailiff, along with other court personnel, is equipped with a security access card that can override the delay.

As a precedant, all United States Federal courthouses are designed in this manner because the General Services Administration (the federal organization responsible for federal buildings/courthouses) has ruled that the Life Safety Code takes

precedence over the building code with regards to egress requirements.

Another Assembly where it is common to see the use of delayed egress, even though prohibited by code, is airport terminals. Airport terminals are considered an Assembly Occupancy like the courtrooms, but the use of delayed egress devices are common in these buildings also because of security concerns.

Cost Impact: Will not increase the cost of construction
It is common to see these devices used within courthouses. Allowing this will not increase the cost of construction.

E66-15 : 1010.1.9.7-PETERKIN5243

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Since courtrooms are assembly spaces, the provisions should be revised to allow for the delayed egress locking systems only on the 2nd way out of the room, not the main exit. This would allow for the security issues for the private judge's areas without an increased risk for the public in the gallery.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Dave Frable, representing US General Services Administration; James Peterkin, representing self (jpeterki@heery.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1010.1.9.7 Delayed egress. Delayed egress locking systems shall be permitted to be installed on doors serving any occupancy except Group A, E and H in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approvedautomatic smoke* or *heat detection system* installed in accordance with Section 907.

> **Exception:** Delayed egress locking systems shall shall be permitted to be installed on exit or exit access doors ~~serving courtrooms within~~ , other than the main exit or exit access door, that serve a ~~Group A occupancies that are~~ courtroom in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

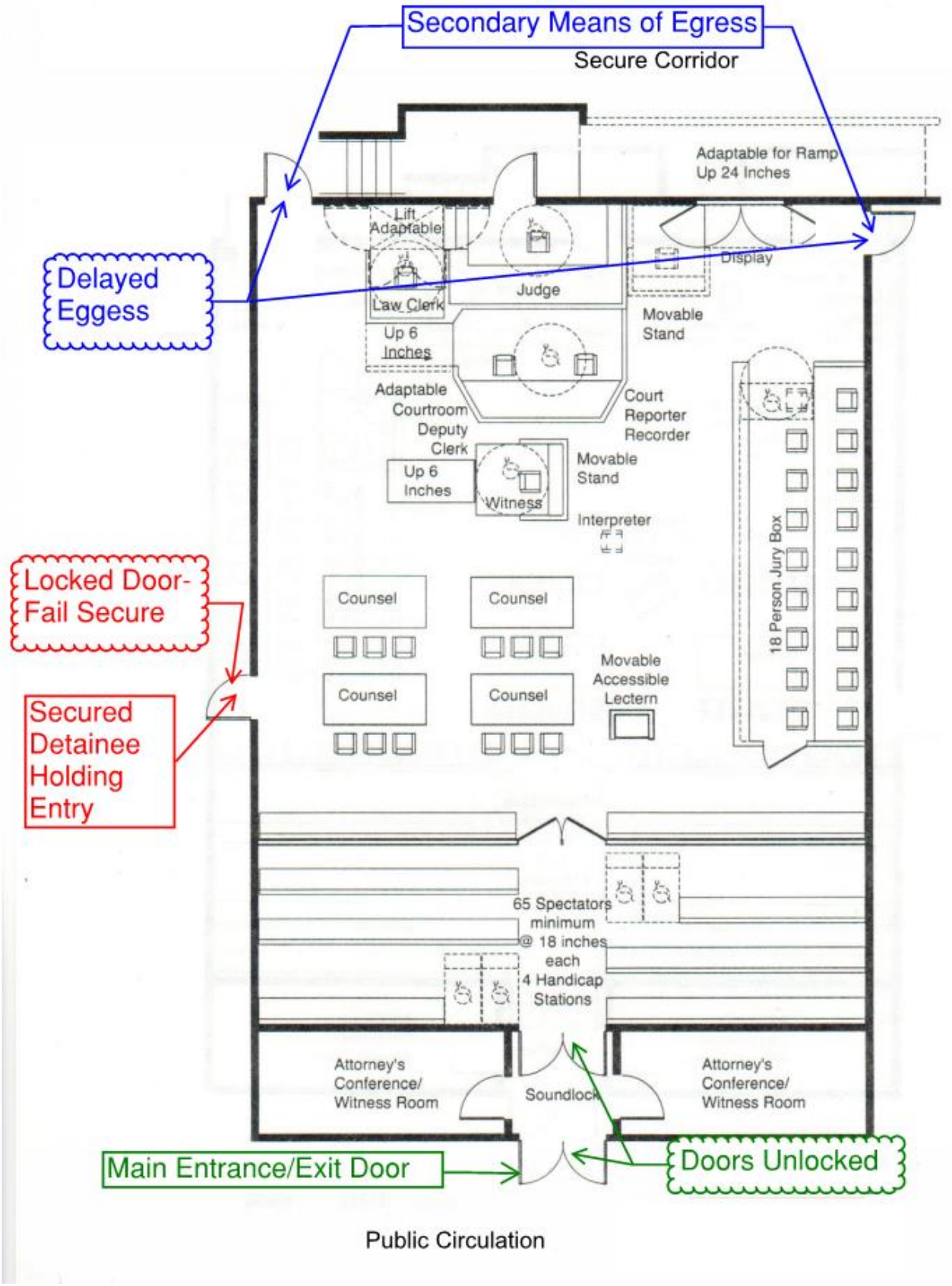
Commenter's Reason: The intent of this code change proposal is to permit the use of delayed egress system on door(s) other than the main entrance/exit door(s) from a courtroom. According to Chapter 3 in the IBC, courtrooms are considered Assembly occupancies. Therefore, delayed egress locking systems would not be permitted to be installed on any doors from a courtroom. However, courtrooms are located within courthouses which are a unique building type that is designed with three separate and distinct circulation systems – one for the public, one for the

judiciary/secure staff, and one for in-custody inmates. The three circulation systems are segregated and they only meet in a single location, the courtrooms. The public enter the courtroom from the public corridor, the judges and court staff enter from the secure corridor and the prisoners enter from the secure detainee area that is typically adjacent to the courtroom. Because each of these groups must be kept separate for security reasons, it is necessary to lock the doors where these groups interface to prevent intermixing.
A standard courtroom design (Please refer to diagram) provides free egress for the public from the main entrance/exit door(s) (the same entrance the public entered the courtroom) to the public circulation area. The door serving the detainee area (prisoner interface) is locked and fail secure, which is permitted by code. As stated above, since the courtrooms are considered an "assembly occupancy" and have an occupant load of 50 or more persons they require a second means of egress.

Industry practice has been to utilize the exit(s) in the front of the courtroom as the secondary means of egress. These egress door(s) also serve as the entrance/egress for the judge and court staff. (Please refer to diagram). To maintain the security separation of occupants, it is industry practice to equip these second means of egress door(s) with a delayed egress locking system which prevents any unauthorized person from gaining access to the secure corridor areas.

A courtroom, unlike many other assembly occupancies, is a controlled environment. A bailiff is located within the courtroom when occupied by the public and/or prisoners. The bailiff, along with other court personnel, is equipped with a security access card that can override the delay.

Permitting the use of a delayed egress system on door(s) other than the main entrance/exit door(s) from a courtroom will not adversely impact occupant safety and has been permitted and recognized by the National Fire Protection Association, Life Safety Code, for several code cycles. In addition, the U.S. General Services Administration also permits the use of delayed egress systems on door(s) other than the main entrance/exit door(s) from a courtroom.



Public Comment 2:

Proponent : Adolf Zubia, representing International Association of Fire Chiefs, Fire & Life Safety Section (azubiamia@yahoo.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1010.1.9.7 Delayed egress. Delayed egress locking systems shall be permitted to be installed on doors serving any occupancy except Group A, E and H in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approvedautomatic smoke* or *heat detection system* installed in accordance with Section 907.

> **Exception:** Delayed egress locking systems shall shall be permitted to be installed on no more than 50-percent of the exit or exit access doors serving courtrooms ~~within~~ in a Group A ~~occupancies that are in buildings that are~~ occupancy equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

Commenter's Reason: The desire for security in courtrooms is a real need. When the Code Development Committee reviewed this item, they agreed with need for security, but they were not satisfied with the manner the exception was worded since it allowed delayed egress on all doors. The security concern is typically with the door located on the judge side of the courtroom. In other words, it would be the second exit from the audience side, not the primary public entrance/exit.
This revision will allow one-half of the doors to be equipped with delayed egress, while the primary exit for the audience is completely available.

E66-15

E68-15

1010.1.9.7; (IFC[BE] 1010.1.9.7)

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

Revise as follows:

1010.1.9.7 Delayed egress. Delayed egress locking systems shall be permitted to be installed on doors serving ~~any occupancy except Group A, E and H~~ Groups B, E, F, I, M, R, S and U occupancies in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approvedautomatic smoke* or *heat detection system* installed in accordance with Section 907.

1010.1.9.7.1 Delayed egress locking system. The delayed egress locking system shall be installed and operated in accordance with all of the following:

1. The delay electronics of the delayed egress locking system shall deactivate upon actuation of the automatic sprinkler system or automatic fire detection system, allowing immediate, free egress.
2. The delay electronics of the delayed egress locking system shall deactivate upon loss of power controlling the lock or lock mechanism, allowing immediate free egress.
3. The delayed egress locking system shall have the capability of being deactivated at the fire command center and other approved locations.
4. An attempt to egress shall initiate an irreversible process that shall allow such egress in not more than 15 seconds when a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the delay electronics have been deactivated, rearming the delay electronics shall be by manual means only.

   Exception: Where approved, a delay of not more than 30 seconds is permitted on a delayed egress door.

5. The egress path from any point shall not pass through more than one delayed egress locking system.

   Exception: In Group I-2 or I-3 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided the combined delay does not exceed 30 seconds.

6. A sign shall be provided on the door and shall be located above and

within 12 inches (305 mm) of the door exit hardware:

6.1 For doors that swing in the direction of egress, the sign shall read: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 1530] SECONDS.

6.2 For doors that swing in the opposite direction of egress, the sign shall read: PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.

6.3 The sign shall comply with the visual character requirements in ICC A117.1.

Exception: Where approved, in Group I occupancies, the installation of a sign is not required where care recipients who because of clinical needs require restraint or containment as part of the function of the treatment area.

7. Emergency lighting shall be provided on the egress side of the door.
8. The delayed egress locking system units shall be listed in accordance with UL 294.

Reason: This proposal is in response to several requests to address the needs of small educational occupancies to help prevent wandering / elopement, especially for the very young, and for special needs students.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
No cost impact unless the building owner chooses to install a delayed egress locking system.

E68-15 : 1010.1.9.7-KULIK3677

Public Hearing Results

Committee Action: Approved as Modified

Modification:

1010.1.9.7 Delayed egress. Delayed egress locking systems shall be permitted to be installed on doors serving Group B, E, F, I, M, R, S and U occupancies in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approvedautomatic smoke or heat detection system installed in accordance with Section 907**.**

~~**Exception:** Delayed egress locking systems shall be~~

~~permitted to be installed on doors serving Group E occupancies that have an occupant load of 10 or fewer and are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907.~~

Committee Reason: There were two modification to this proposal. One modification was to delete the limit of 10 occupants. The proposed text was not clear as to if this was an entire facility or just one classroom. The requirements for sprinklers or smoke or heat detection is an improvement in the level of safety that should allow for a classroom with a higher occupant load to use this option for delayed egress locking systems.

The second modification was to delete the new proposed exception and include Group E in the allowances for where delayed egress locking systems can be used. The exception no longer has any additional limits for where delayed egress locking systems can be used. This could be considered editorial based on the approval of the first modification.

Splitting the section into two parts improves clarity. Changing the text to say where these types of locks are permitted is clearer than listing where it is not permitted. Allowing Group E facilities to use delayed egress locking systems helps address the security concerns associated with wandering or 'trigger events' for preschool classes or classrooms for students with special needs.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jonathan Siu, City of Seattle Department of Planning & Development, representing Washington Association of Building Officials Technical Code Development Committee (jon.siu@seattle.gov) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

1010.1.9.7 Delayed egress. Delayed egress locking systems shall be permitted to be installed on doors serving ~~Group B, E, F, I, M, R, S and U occupancies~~ the following occupancies in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approvedautomatic smoke* or *heat detection system* installed in accordance with Section 907:

1. Groups B, F, I, M, R, S and U occupancies
2. Group E classrooms with an occupant load of less than 50.

Commenter's Reason: This public comment limits the use of delayed egress devices in E occupancies to classrooms with an occupant load less than 50, as opposed to assembly spaces in E occupancies.

The code says that assembly areas in schools get classified as E occupancies (Section 303.1.3). This means that multi-purpose rooms, auditoriums, gymnasiums, and similar spaces associated with a school are E occupancies.

This code change proposal, as modified by the committee, allows delayed egress hardware on every door in an E occupancy, which would include these assembly-type spaces. However, the committee reason statement only talks about classrooms, where there are fewer occupants. We agree it would be appropriate to allow delayed egress hardware on classroom doors, but we do not think it is appropriate to have delayed egress hardware in assembly areas. The proposed change (as modified) also conflicts with the requirements in Section 1010.1.10 for panic hardware.
The modification proposed in this public comment would take care of the both issues by limiting the delayed egress hardware to classroom doors (as appears to have been the intent of the proponents of the original code change), but adds an additional limitation that the classrooms with this hardware must also have an occupant load of less than 50, in order to eliminate the conflict with the panic hardware requirements.

The editorial modification to move the list of occupancies from the main paragraph to a bullet list was necessitated when the E occupancies were separated from the list, in order to eliminate any confusion over whether the sprinklers and alarm systems are required for all the listed occupancies.

E68-15

E76-15

1008.3.3, 1010.1.9.12 (New); (IFC[BE] 1008.3.3, 1010.1.9.12 (New))

Proposed Change as Submitted

Proponent : Lee Kranz, representing Washington Association of Building Officials Technical Code Development Committee

2015 International Building Code

Add new text as follows:

1010.1.9.12 Electronic locking devices on elevator lobby doors. In Group B occupancies, exit access doors within secured elevator lobbies are permitted to be locked with electronic locking devices that operate with items such as a card key, a security code or other security clearance locking devices in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. The locking system shall be installed and operated in accordance with all the following:

1. Loss of power to the locking system automatically unlocks the door.
2. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016 mm to 1219 mm) vertically above the floor and within 5 feet (1524 mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads "PUSH TO EXIT." When operated, the manual unlocking device shall result in direct interruption of power to the lock—independent of other electronics— and the doors shall remain unlocked for not less than 30 seconds.
   Exception: A manual unlocking device is not required in elevator lobbies provided with direct access to an exit doorway and a two-way communication system is installed in the elevator lobby in accordance with Section 1009.8.
3. Activation of the building alarm system, shall automatically unlock the doors and the doors shall remain unlocked until the fire alarm system has been reset.
4. Activation of the building automatic sprinkler system or fire detection system shall automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has been reset.
5. Emergency egress lighting shall be provided in the secured elevator lobby at the door.
6. The door locking system units shall be listed in accordance with UL 294.
7. The use of electronic locking devices is revocable by the building official for due cause.

Revise as follows:

1008.3.3 Rooms and spaces. In the event of power supply failure, an emergency electrical system shall automatically illuminate all of the following areas:

1. Electrical equipment rooms.
2. Fire command centers.
3. Fire pump rooms.
4. Generator rooms.
5. Public restrooms with an area greater than 300 square feet (27.87 m^2).
6. Secured elevator lobbies where exit access doors are locked with an electronic device in accordance with Section 1010.1.9.12.

Reason: In order to maintain adequate security in office buildings, access to required exits may be limited by securing doors to some areas of the building. With the increasing need for office building security we are seeing the growing use of electronic locking devices on doors along the exit pathway. Many of these installations are being done without a permit and are later discovered by Fire Prevention Officers on their annual inspections. The use of electronic locking devices on elevator lobby exit access doors is a reality that must be addressed in the code for office and technology buildings. To maintain an unobstructed and undiminished path of exit travel, criteria for acceptance of these locking devices must be established to preserve the level of building safety intended by the International Building Code.

Cost Impact: Will not increase the cost of construction
Lobby doors locks are being installed without the benefit of a permit. This proposal will legitimize the use of security door locking systems thereby saving money by eliminating the need for retrofit after the original unpermitted installation.

E76-15 : 1010.1.9.12 (New)-KRANZ3765

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This special requirement for elevator lobbies is already addressed in other sections of the code, therefore, this new language is not needed. Section 3006.4 requires direct access to one stairway from the lobby, so this proposal is not needed for occupants in the lobby. If the lobby is a space that is part of the route to the exits, locking of doors is already addressed in Section 1010.1.9.9. There are some language inconsistencies in the proposed text. Item 7 allows for too much judgement on the part of the code official.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Lee Kranz, City of Bellevue, WA, representing The City of Bellevue, WA (lkranz@bellevuewa.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1010.1.9.12 Electronic locking devices on elevator lobby doors. In Group B occupancies, exit access doors within secured elevator lobbies are permitted to be locked with electronic locking devices that operate with

items such as a card key, a security code or other security clearance locking devices in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. The locking system shall be installed and operated in accordance with all the following:

1. Loss of power to the locking system automatically unlocks the door.
2. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016 mm to 1219 mm) vertically above the floor and within 5 feet (1524 mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads "PUSH TO EXIT." When operated, the manual unlocking device shall result in direct interruption of power to the lock—independent of other electronics— and the doors shall remain unlocked for not less than 30 seconds.
   Exception: A manual unlocking device is not required in elevator lobbies provided with direct access to an exit doorway and a two-way communication system is installed in the elevator lobby in accordance with Section 1009.8.
3. Activation of the building alarm system, shall automatically unlock the doors and the doors shall remain unlocked until the fire alarm system has been reset.
4. Activation of the building automatic sprinkler system or fire detection system shall automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has been reset.
5. Emergency egress lighting shall be provided in the secured elevator lobby at the door.
6. The door locking system units shall be listed in accordance with UL 294.
7. ~~The use of electronic locking devices is revocable by the building official for due cause.~~

Commenter's Reason: This public comment is intended to address statements made by the Means of Egress Committee at the Committee Action Hearings (CAH) in Memphis. The Committee's assertion that the code already has special requirements for locking elevator lobby doors to maintain security is erronious. The only provision that comes close to meeting the goal of securing elevator lobby doors is Section 1010.1.9.7 for delayed egress. This provision is rarely if ever used for this purpose as it falls short of providing adequate security and does not provide for ease of use by staff who need to access secured areas. The reference provided by the Committee to Section 1010.1.9.9 does not allow elevator lobby doors to be locked from the lobby (egress) side which is the sole reason for this proposal. Reference was also made to Section 3006.4 along with a statement that this section "requires direct access to one stairway from the lobby..". I find no such language in Section 3006.4. The provision says that "Elevator lobbies shall be provided with at least one means of egress complying with Chapter 10 and other provisions in this code". This language essentially requires an exit or exit access, as is typical for any other room or space in the building; there is no requirement for "direct access to one stairway from the lobby" provided in this section as stipulated by the Committee.

Item 7 of the original proposal, which gave the building official the right to revoke the option to lock elevator lobby doors, has been deleted to maintain consistency in application of the provision.

Locking elevator lobby doors to maintain security in today's highly competitive office invironment is a reality that the code must address. The 2015 IBC does not currently provide for a solution for this issue which is why many fire prevention

officers are finding these doors locked after the final building inspection is completed and the C of O is issued. This code change provides a logical and safe method to maintain a secured office invironment while allowing for safe egress from the elevator lobby in the unlikely event that someone is locked in the lobby.

E76-15

E82-15

1011.6; (IFC[BE] 1011.6)

Proposed Change as Submitted

Proponent : Gregory Keeler, representing Self (design_tech@windstream.net)

2015 International Building Code

Revise as follows:

1011.6 Stairway landings. There shall be a floor or landing at the top and bottom of each *stairway*. The width of landings shall be not less than the width of *stairways* served. Every landing shall have a minimum width measured perpendicular to the direction of travel equal to the width of the *stairway*. Where the *stairway* has a straight run the depth ~~need not exceed~~ shall be a minimum of 48 inches (1219 mm). Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*.

> **Exception:** Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1029.

Reason: The current code language does not establish a minimum depth/run for a landing due to the permissive language. This proposal will stipulate the minimum depth/run.

Cost Impact: Will not increase the cost of construction
There could be a very slight increase in contruction costs if the current language isn't interpreted as establishing a minimum landing depth/run.

E82-15 : 1011.6-KEELER4710

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The change is not needed. The current language already sets a minimum size.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Lee Kranz, City of Bellevue, WA, representing

Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1011.6 Stairway landings. There shall be a floor or landing at the top and bottom of each *stairway*. The width of landings, measured perpendicular to the direction of travel, shall be not less than the width of *stairways* served. Every landing shall have a minimum ~~width~~ depth, measured ~~perpendicular~~ parallel to the direction of travel, equal to the width of the *stairway*~~. Where the *stairway* has a straight run the depth shall be a minimum of~~ or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*.

> **Exception:** Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1029.

Commenter's Reason: Section 1011.6 does not specify the minimum depth requirement for stairway landings. This public comment modifies the original proposal to clarify the minimum depth and width for all stairway landings. The commentary text and plan view on page 10-74 of the 2012 IBC Commentary is erroneous because it says that "the minimum size (width and depth) of all landings in a stairway is determined by the actual width of the stairway". The minimum width of landings is specified but the minimum depth is not. The code currently says that landings serving a straight run stairway need not exceed 48" but does not indicate the minimum depth. This modification specifies that the minimum depth of the landing in the direction of travel shall be equal to the width of the stair or 48" whichever is less.

E82-15

E83-15

1011.4; (IFC[BE] 1011.4)

Proposed Change as Submitted

Proponent : David Cooper (coderep@stairways.org)

2015 International Building Code

Revise as follows:

1011.4 Walkline. The walkline across *winder* treads shall be concentric to the direction of travel through the turn and located 12 inches (305 mm) from the side where the *winders* are narrower. Where the winders continue beyond the turn within the straight segments of a flight the walkline shall continue parallel to the side of the stair where the winders are narrower. The 12-inch (305 mm) dimension shall be measured from the widest point of the clear *stair* width at the walking surface of the *winder*. Where *winders* are adjacent within the *flight*, the point of the widest clear *stair* width of the adjacent *winders* shall be used.

Reason: The current code does not adequately address how the walkline is located where winders continue beyond the corner of a turn. (see figure A) A portion of the winder treads often extend into the straight segments of the flight where the walkline is not concentric to the turn but parallel to the side of the stairway. This change provides the needed clarification to accurately determine the walkline location.

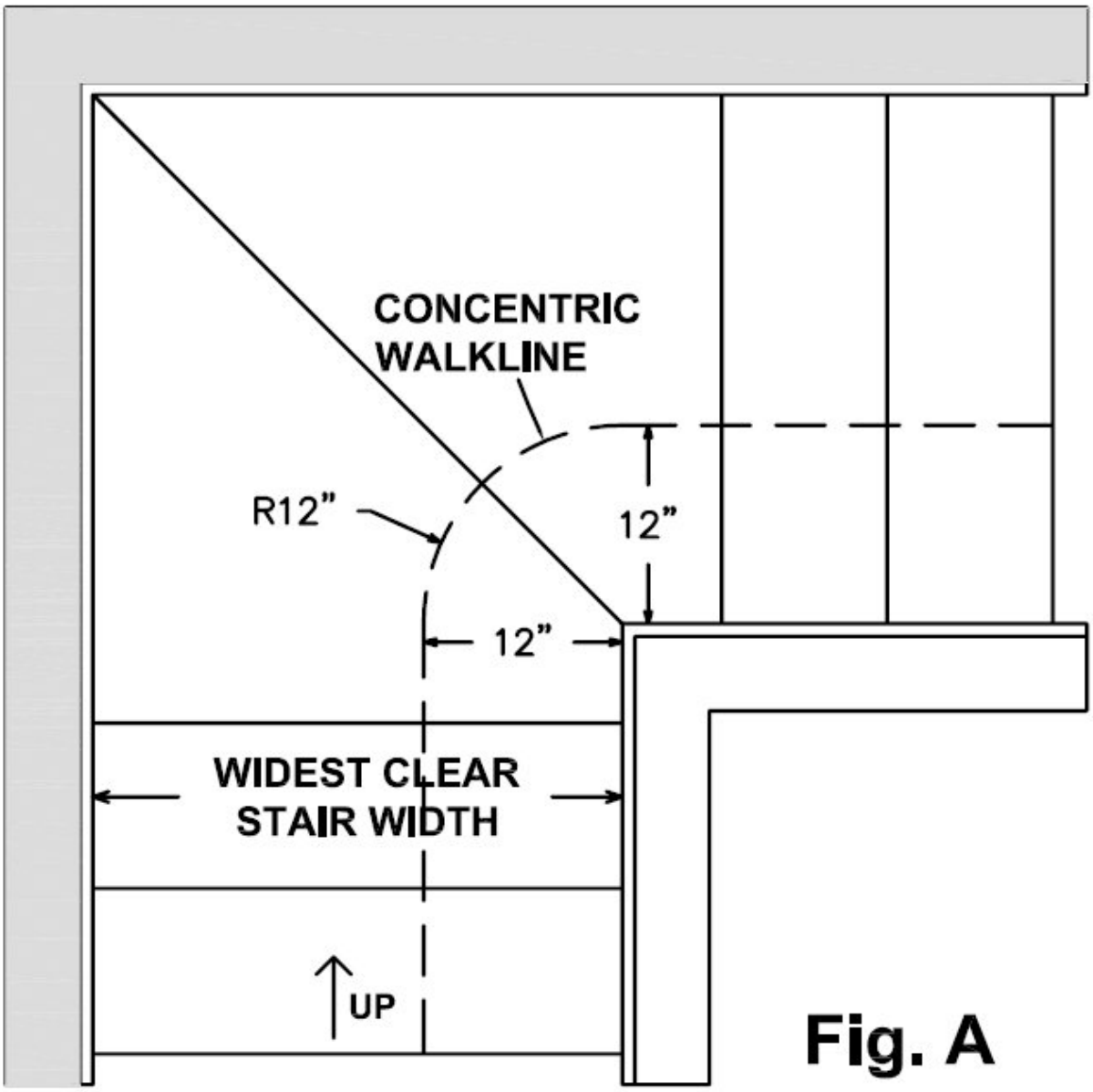


Fig. A

Cost Impact: Will not increase the cost of construction
This proposal only clarifies the code and will require no additional resources affecting the cost of construction.

E83-15 : 1011.4-COOPER5237

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The diagram in the reason statement is the only way to understand the proposed language. The winder treads in diagram would be permitted with the current text.

Assembly Motion: As Submitted

Online Vote Results: Failed

Support: 30.79% (101) Oppose: 69.21% (227)

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Cooper, Stair Manufacturing and Design Consultants, representing Stairbuilders and Manufacturers Association (coderep@stairways.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1011.4 Walkline. The walkline across *winder* treads shall be concentric to the turn and parallel to the direction of travel ~~through~~ entering and exiting the turn ~~and~~ . The walkline shall be located 12 inches (305 mm) from the side where the *winders* are narrower. ~~Where the winders continue beyond the turn within the straight segments of a flight the walkline shall continue parallel to the side of the stair where the winders are narrower.~~ _ The 12-inch (305 mm) dimension shall be measured from the widest point of the clear *stair* width at the walking surface of the *winder*. Where *winders* are adjacent within the *flight*, the point of the widest clear *stair* width of the adjacent *winders* shall be used.

Commenter's Reason: Although we would agree with the committee that the current language in the code suffices for the example given in the original proposal this is simply not the case when the winder layouts are more complicated as shown in **Fig. B**. We would also agree with the committee that the added language in the original proposal was difficult to understand…

… However this modification clearly addresses the committees concerns by eliminating what was considered unnecessary language by the committee and succinctly describing the proponents intent.

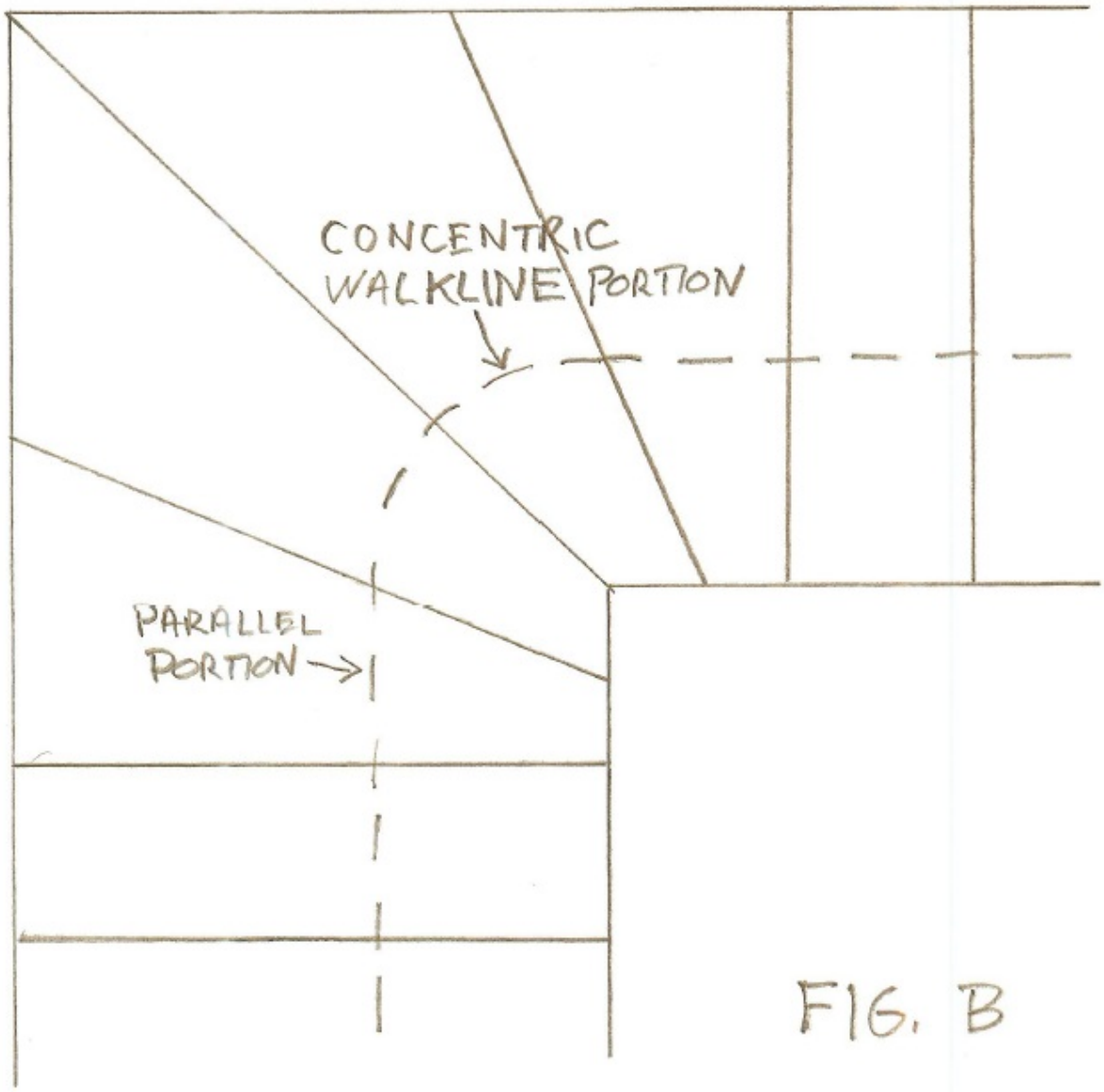
This change is needed for several reasons:

1. **As stated in the original proposal,** winder sections of a flight extend beyond the corner. Because winders must have a minimum tread depth of 6 inches (152 mm) at any point, they cannot all meet at the corner but must extend around the corner, beyond the arc of the users turn. This straight extension of the walkline across winders *always occurs*, unless the corner is rounded throughout the turn at great expense, as with curved stairs. **Figure A** shows the most simple arrangement of two winders but winder sections wrapping a corner will have two or more winders with a walkline that is both curved and straight or entirely straight as in the entry and exit winders of **Figure B**. The current code does not accurately describe how the walkline should be demarcated to measure the winder tread depth. The modification provides the needed correction.
2. **The current 2015 IBC language requires correction.** The word concentric by definition refers to circles or arcs having the same center and is not applicable to the straight portions of the walkline that are parallel to the direction of travel. The modification is more appropriate because it states "***the walkline shall be concentric to the turn…***"not the direction of travel that is sometimes a straight line. The turn is an arc, it has a center-point around which the turning person revolves, and use of the term concentric is applicable. This change further clarifies with the separate statement; "***…and parallel to the direction of travel entering and exiting the turn.***" These modifications accurately describe the users path that the walkline emulates and provide the exacting location necessary to determine the winder tread

depth by describing the curved and straight sections independently. I simply failed to address this point in the original proposal.

3. **The modification simplifies and offers text that is easy to understand,** and uses well understood terms to provide language that is enforceable across the infinite array of winding stairway designs both simple and complex. It also eliminates the language the committee considered unnecessary in the original proposal.

Please support Approval as Modified.



E83-15

E88-15

1013.4, 1111.3; (IFC[BE] 1013.4)

Proposed Change as Submitted

Proponent : Timothy Pate, City and County of Broomfield, representing the Colorado Chapter ICC Code Change Committee (tpate@broomfield.org)

2015 International Building Code

Revise as follows:

1013.4 Raised character and braille exit signs. ~~A~~ Where exit signs are required by Section 1013.1, a sign stating EXIT in visual characters, raised characters and braille and complying with *ICC A117.1* shall be provided adjacent to each door to an *area of refuge*, an exterior area for assisted rescue, an interior*exit stairway* or *ramp*, an exterior exit stairway or ramp, an *exit passageway* and the *exit discharge*.

1111.3 Other signs. Signage indicating special accessibility provisions shall be provided as shown.

1. Each assembly area required to comply with Section 1108.2.7 shall provide a sign notifying patrons of the availability of assistive listening systems. The sign shall comply with ICC A117.1 requirements for visual characters and include the International Symbol of Access for Hearing Loss.

   Exception: Where ticket offices or windows are provided, signs are not required at each assembly area provided that signs are displayed at each ticket office or window informing patrons of the availability of assistive listening systems.
2. At each door to an *area of refuge*, an exterior area for assisted rescue, an ~~egress~~ interior exit *stairway* or *ramp*, an exterior exit*stairway* or *ramp*, *exit passageway and exit discharge doors where exit signs are required by Section 1013.1, signage shall be provided in accordance with Section 1013.4.*
3. At *areas of refuge*, signage shall be provided in accordance with Section 1009.11.
4. At exterior areas for assisted rescue, signage shall be provided in accordance with Section 1009.11.
5. At two-way communication systems, signage shall be provided in accordance with Section 1009.8.2.
6. In *interior exit stairways* and *ramps*, floor level signage shall be provided in accordance with Section 1023.9.
7. Signs identifying the type of access provided on amusement rides required to be *accessible* by Section 1110.4.8 shall be provided at entries to queues and waiting lines. In addition, where *accessible* unload areas also serve as *accessible* load areas, signs indicating the location of the *accessible* load and unload areas shall be provided at entries to queues and waiting lines. These directional sign characters shall meet the visual character requirements in accordance with ICC A117.1.

Reason: I believe that the existing code language requires raised character and braille exit signs installed at every exit discharge door even when only one is required and regular exit signs are not required. I believe that the intent is to only require the raised character and braille exit signs to be installed at exit discharge doors when exit signs are requried as per Section 1013.
This proposed change will modify the 2 different sections that have these requirements

I also modified languge in section 1013.4 to clarify that the raised character and braille exit signs are only required at doors into the vertical exit enclosures - stairways or ramps.

Cost Impact: Will not increase the cost of construction
This would potentially decrease cost for jurisdictions who have taken the interpretation to be requiring the Braille exit signs at these additional locations.

E88-15 : 1013.4-PATE4098

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The reference to Section 1013.1 in Item 2 could be read to require tactile exit signage at all exit access doors with an exit sign. Requiring a tactile exit sign at exterior exit stairways could result in signage being required outside at the top of the steps. Where would you put the tactile sign if there are no walls?

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Timothy Pate, representing City and County of Broomfield (tpate@broomfield.org) requests Approve as Submitted.

Commenter's Reason: With all due respect to the Means of Egress Committee my proposed language would not have anything to do with exit access doors. 1111.3 #2 only deals with doors that lead to an area of refuge, exterior area for assisted rescue, egress stairways, exit passageway and exit discharge.

My proposal is to delete the general "egress" for stairway and add language which would limit the requirement for these signs to doors that lead into interior stairway or ramp (which is a rated enclosure) or doors that lead to an exterior stairway or ramp. It does not say that you would need these signs outside at top of exterior stair or ramp only next to exit discharge door that leads to these components.

It also adds language that would only require these signs when two or more exits are required.

The current language in 1013.4 would technically require these signs at all exit discharge doors – even when exit signs are not required such as single exit spaces or when only one exit is required and multiple exits are provided.

I firmly believe that this proposal makes the code better and would be in line with what the accessibility groups are expecting.

E88-15

E91-15

1014.9; (IFC[BE] 1014.9)

Proposed Change as Submitted

Proponent : Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

1014.9 Intermediate handrails. *Stairways* shall have intermediate *handrails* located in such a manner that all portions of the *stairway* minimum width or required capacity are within 30 inches (762 mm) of a handrail. On monumental *stairs*, *handrails* shall be located along the most direct path of egress travel.

> **Exception:** Stairways less than 88 (2235 mm) inches in width are not required to have an intermediate handrail.

Reason: Section 1011.2 requires stair widths of at least 44". Exception 1 allows 36 inch widths serving occupant loads of less than 50. Table 1020.2 requires minimum corridor widths of 44 inches, with 36 inches for occupancies of less than 50, and within a dwelling unit. 24 inches is allowed to access mechanical and electrical equipment.

The existing language in the case of a 61-75 inch wide stair would reduce the usable exit width to less than 36 inches. While this does not present an issue with intermediate handrails for stairs 88 inches and wider, it does cause concern for path widths in stairs greater than 60 inches and less than 88 in., (Stairs between 72 and 88 inches are not included in this argument since 36 inch paths are reserved for low occupancy areas, which the areas we are referencing are not).

This exception would allow for base code to allow for stairs 88 inches in width or greater, while avoiding paths less 44 inches within the stairs smaller than 88 inches.

Cost Impact: Will not increase the cost of construction
This proposal would result in a decrease of construction costs by not requiring as many intermediate handrails as currently required by code.

E91-15 : 1014.9-DIGIOVANNI3848

Public Hearing Results

Committee Action: Disapproved

Committee Reason: While effective width for a stairway with a central handrail is an issue that needs to be addressed, there was a concern that this exception would be in conflict with the stairway safety provisions that have handrails within 30" of the required stairway width. Consideration of the provisions for stepped aisles that do not have handrails within 30" might be something to consider for a public comment.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Kevin McOsker, representing Southern Nevada Chapter of ICC (ktm@ClarkCountyNV.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1014.9 Intermediate handrails. *Stairways* 88 inches (2235 mm) in width or greater shall have intermediate *handrails* located in such a manner that all portions of the *stairway* minimum width or required capacity are within 30 inches (762 mm) of a handrail. On monumental *stairs*, *handrails* shall be located along the most direct path of egress travel.

> ~~**Exception:** Stairways less than 88 (2235 mm) inches in width are not required to have an intermediate handrail.~~

Commenter's Reason: The revised language in this code proposal serves the same intent, with few words and better clarity. The current code language would require an intermediate handrail for stairs that are greater than 60" wide. With an intermediate rail, the stairway would be divided into two 30" aisles each (not including the intermediate rail and the projected handrail at the edge of the stair). At present, the code recognizes 44" as the minimum exit width for occupant loads greater than 50. This code change would preserve the 44" width of a stairway aisle in cases where an intermediate handrail is required. This code change does not affect ramped or stepped aisles of assembly areas since section 1014.1 only requires compliance to 1014.2 though 1014.8.

E91-15

E95-15

1015.6 (IFC[BE] 1015.6, IMC[BE] 304.11), 1015.7, (IFC[BE]1015.7, IMC[BE] 304.12 (New))

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

1015.6 Mechanical equipment, systems and devices. *Guards* shall be provided where ~~various components that require service~~ appliances and equipment within the scope of this code, including but not limited to HVAC equipment, refrigeration equipment, exhaust fans, energy recovery equipment, pollution control units, smoke control fans, solar thermal equipment, are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The *guard* shall extend not less than 30 inches (762 mm) beyond each end of such components. The *guard* shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter.

> **Exception:***Guards* are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from the roof edge or open side of the walking surface.

1015.7 Roof access. *Guards* shall be provided where the roof hatch opening is located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The *guard* shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter..

> **Exception:***Guards* are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from the roof edge or open side of the walking surface.

2015 International Mechanical Code

Revise as follows:

[BE] 304.11 Guards. Guards shall be provided where ~~various components that require service~~ appliances and ~~roof hatch openings are~~ equipment wihthin the scope of this code, including but not limited to HVAC equipment, refrigeration equipment, exhaust fans, energy recovery equipment, pollution control units, smoke control fans, solar thermal equipment,are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof, or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of components that require service. The top of the guard shall be located not less than 42 inches (1067 mm) above the elevated surface adjacent to the guard. The guard shall be constructed so as to prevent the passage of a 21-inch-diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the *International Building Code*.

> **Exception:** Guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire lifetime of the roof covering. The devices shall be re-evaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from roof edges and the open sides of walking surfaces.

Add new text as follows:

[BE] 304.12 Roof access. Guards shall be provided where the roof hatch opening is located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter.

> **Exception:** Guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from the roof edge or open side of the walking surface.

Reason: There are two purposes for this proposal - both dealing with clarification and coordination.
The change last cycle to "various components that require service" has made the intent ambiguous. What are various components? The current text may be appropriate for the IBC but it is inadequate for the IMC. The text needs to spell out what equipment is expected to require service in the context of a mechanical code. There could be some type of equipment that does not require periodic service and instead would simply be replaced at the end of its life, however, the PMG CAC cannot determine what equipment that would be. Even a direct -drive permanently lubricated toilet exhaust fan installed on a roof would eventually need to be cleaned. It is assumed that solar thermal equipment requires cleaning and servicing. If the appliance or equipment ends up being close to the roof edge, then protection from falling by means of a guard is warranted. If guards are undesirable for aesthetic or expense reasons, then the appliances and equipment should not be put close to the roof edge; simple solution.

Moving roof hatches into its own section will make the IMC and IBC/IFC match. Since

this section is controlled by the IBC MOE committee now, this can be viewed as editorial only. There is no intent to change requirements. There is a companion proposal to revise the exception. If that proposal is approved, the exception should also be revised from the new IMC Section 304.12.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

E95-15 : 1015.6-KULIK5052

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This code change was disapproved because of the 'laundry list' of rooftop components. The term "scope of the code" is too broad. The limit for access should include rooftop components that "require service" so you don't pick up everything.

The split of the sections in the IMC to match the IBC ad IFC split between equipment and roof hatches is appropriates and should be pursued in a public comment.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Mechanical Code

~~**[BE]**~~ **304.11 Guards.** Guards shall be provided where various components that require service ~~and roof hatch openings~~ are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof, or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of components that require service. The top of the guard shall be located not less than 42 inches (1067 mm) above the elevated surface adjacent to the guard. The guard shall be constructed so as to prevent the passage of a 21-inch-diameter (533 mm) sphere and shall

comply with the loading requirements for guards specified in the *International Building Code*.

> **Exception:** Guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire lifetime of the roof covering. The devices shall be re-evaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from roof edges and the open sides of walking surfaces.

304.12 **Roof Access** Guards shall be provided where the roof hatch opening is located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter.

> **Exception:** Guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from the roof edge or open side of the walking surface.

Commenter's Reason: The requirements for guards around equipment on the roof and at roof hatches are the same in the IBC, IFC and IMC. Over time the requirements for guards at roof hatches was split apart in IBC and IFC and combined in the IMC. This proposal has all three codes match so that there is no confusion on this requirement. There is no change in requirements.
Staff note: If this public comment is successful, the exception in the new Section 304.12 will be coordinated with the revised exception approved in E96-15.

Public Comment 2:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1015.6 Mechanical equipment, systems and devices. *Guards* shall be provided where ~~various components~~ appliances and equipment that require service are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The *guard* shall extend not less than 30 inches (762 mm) beyond each end of such components. The *guard* shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter.

Exception: *Guards* are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from the roof edge or open side of the walking surface.

2015 International Mechanical Code

[BE] 304.11 Guards. Guards shall be provided where ~~various components~~ appliances and equipment that require service and roof hatch openings are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof, or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of components that require service. The top of the guard shall be located not less than 42 inches (1067 mm) above the elevated surface adjacent to the guard. The guard shall be constructed so as to prevent the passage of a 21-inch-diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the *International Building Code*.

Exception: Guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire lifetime of the roof covering. The devices shall be re-evaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from roof edges and the open sides of walking surfaces.

Commenter's Reason: The ICC Building Code Action Committee requests approval of this public comment. The MOE code development committee did not like the laundry list originally proposed. This modification clarifies that the guards are required at appliances and equipment that require service. 'Various components' is too broad a term and not consistently enforced or understood. This modification also leaves in the phrase "that require service" so the application for guards if further limited.

E95-15

E97-15

1017.2, 1017.2.3 (New); (IFC[BE] 1017.2, 1017.2.3 (New))

Proposed Change as Submitted

Proponent : Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

1017.2 Limitations. *Exit access* travel distance shall not exceed the values given in Table 1017.2 except where limited by Section 1017.2.3.

Add new text as follows:

1017.2.3 Groups A, B, E and R decrease. In Groups A, B, E and R occupancies, assigned Risk Categories III and IV in Table 1604.5 and of Types IIB, IIIB and VB construction shall be limited to the travel distances in Table 1017.2 for buildings without sprinkler systems where such buildings are any of the following:

1. Assigned a Seismic Design Category C or D in Table 1613.3.5(1).
2. Located in a flood hazard area established in accordance with Section 1612.3.
3. Located in a hurricane-prone region.

Reason: As hazard events, both naturally-occurring and man-made, are increasing in number and severity in the United States and around the world, the resilience of communities and the individual buildings within those communities is becoming of vital importance.
A National Institute of Building Sciences Publication (May, 2014) entitled "Moving Forward: Findings and Recommendations", states that "while a long history of building codes has laid the foundation for addressing the impacts of natural and man-made hazards, changes in the frequency and severity of events have brought new challenges — challenges requiring the engagement and support of policymakers. While building codes serve as the minimum requirements for life-safety in the building stock, basic life-safety protections do not fully address building performance requirements to achieve resilience."

Mitigation includes, among other things, fortifying buildings so that they are less likely to be severely damaged or completely destroyed during or immediately after a disaster. It is the key to recovery after a disaster. Mitigation allows individuals and communities to lessen post-disaster disruption and rebuild more quickly. States and cities have started implementing more stringent requirements in specific geographic areas they have designated as higher-risk. The purpose of this series of code changes proposed by Fire Safe North America is to encourage the debate in the code development process to identify what constitutes resilient buildings, and begin to identify issues that will become the basis for "new minimum requirements" for increased building resiliency.

Responding to the challenge of mitigating damage and resilient buildings is an admittedly complex topic. Fire Safe North America proposals are intended to reduce the total reliance of a community and its firefighters on automatic sprinkler systems in disaster-prone areas of the country where the water supply and/or power are likely to be interrupted, or are likely to have water supply system operational issues. The proposals, if approved, will fortify the building code requirements for the most

vulnerable buildings to fire - Type IIB, IIIB, and VB construction, which are also classified as Risk Category III and IV in Table 1604.5, and in high-risk, disaster prone regions. The proposals modify the following code requirements in such buildings:

1. Reduce allowable area limits
2. Protect the path of egress by limiting travel distances
3. Protect the path of egress by protecting corridors
4. Require higher fire resistance ratings for occupancy separations
5. Require higher fire resistance ratings for building elements

These proposals are intended to be conservative so as to promote community resiliency and disaster mitigation by protecting essential buildings with both sprinkler protection AND fire resistance rated compartmentation. These proposals may be fairly considered to be the proverbial "belt-and suspenders" approach, requiring both sprinkler protection and increased fire resistance rated compartmentation in specific buildings in high risk areas for disasters.

Historically, the code has been written using the general assumption that automatic sprinklers will operate satisfactorily and there will be suitable power for such building operations. Code users design and build assuming that firefighters will be able to respond at their normal efficiencies. In some parts of the country, buildings impacted by disasters may remain without reliable water and/or power for a considerable period of time, well after the occurrence of the disaster. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself. Total reliance on an uninterrupted power and water supply may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

For example, more than 15% of the U.S. population lives in potential major earthquake areas. 41 states and territories have moderate to high risk. There is a real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also building-to-building fire spread. In October 17, 1989, a 7.1 earthquake in Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. On January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes. 85 spread to adjacent buildings and 10 approached or reached conflagration status. 1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone.

In 1997, the Red River flooded Grand Forks, North Dakota, causing $3.7 billion in flood losses, and displaced thousands of families and businesses. Similar data of increased fire incidents are available in other flood and hurricane-prone areas.

Undoubtedly, this will increase the cost of construction in these specific buildings. However, a recent FEMA's 2010 report "Mitigation's Value to Society" statement described how mitigation is an investment that needs to be made. A recent study by the NIBS Multihazard Mitigation Council (MMC) identified that each dollar spent on mitigation saves an average of $4.00 in disaster recovery.

Links:
http://www.dhses.ny.gov/oem/mitigation/documents/mitigations-value-to-society.pdf

The two-volume NIBS MMC study report is available for free download at:
http://www.nibs.org/index.php/mmc/projects/nhms

Cost Impact: Will increase the cost of construction
This change decreases the travel distances for essential buildings to the travel distances specified for non-sprinklered buildings, and the increased cost will be consistent with the costs for non sprinklered buildings. The increased costs are only proposed for limited geographic areas.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There was no technical justification for why Categories C and D were included or why E and F were excluded. There was no technical justification for whey construction types 2B. 3B and 5B were more of a hazard to safety than other types. There is no link between travel distance limitations and resistance for hurricanes or tornadoes. Safety after a natural disaster should include shutting off utilities to damages buildings – there is no such requirement here. This proposal, and a similar proposal, E105, were both disapproved for consistent action.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1017.2 Limitations. *Exit access* travel distance shall not exceed the values given in Table 1017.2 except where limited by Section 1017.2.3.

1017.2.3 Groups A, B, E and R decrease. ~~In~~ Sprinklered buildings in Groups A, B, E and R occupancies, assigned~~–~~ to Risk ~~Categories III and~~ Category IV in Table 1604.5 and of Types IIB, IIIB and VB construction, shall be limited to the travel distances in Table 1017.2 for nonsprinklered buildings ~~without sprinkler systems~~ where such buildings are any of the following:

1. Assigned ~~a~~ to Seismic Design Category ~~C~~ D or ~~D~~ F in ~~Table 1613.3.5(1)~~ accordance with Section 1613.3.5.
2. Located in a *special flood hazard area* established in accordance with Section 1612.3.
3. Located in a ~~hurricane-prone~~*windborne-debris region* based on Figure 1609.3(2).

Exception: Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, that are provided with a secondary water supply in accordance with Section 403.3.3, and where the fire pumps are protected against interrupton of service in accordance with Section 913.

Commenter's Reason: The increased fire resistivity required by this proposal is intended to apply ONLY to buildings that are ALL of the following:

- Classified in the highest risk category.
- Located in the highest risk, disaster-prone regions for floods, hurricanes and seismic activity.

- Type IIB, IIIB or VB construction.

It excludes sprinklered buildings that have emergency backup systems for water and power in those regions.

Although the cause is debated, naturally-occurring and man-made disasters are increasing in number and severity in the United States and around the world. That fact is undisputed. The resilience of communities and the individual buildings within those communities is becoming of vital importance.

A National Institute of Building Sciences Publication (May, 2014) entitled "Moving Forward: Findings and Recommendations", states that "while a long history of building codes has laid the foundation for addressing the impacts of natural and man-made hazards, changes in the frequency and severity of events have brought new challenges — challenges requiring the engagement and support of policymakers. While building codes serve as the minimum requirements for life-safety in the building stock, basic life-safety protections do not fully address building performance requirements to achieve resilience."

Mitigation includes, among other things, fortifying buildings so that they are less likely to be severely damaged or completely destroyed during or immediately after a disaster. It is the key to recovery after a disaster. Mitigation allows individuals and communities to lessen post-disaster disruption and rebuild more quickly. States and cities have started implementing more stringent requirements in specific geographic areas they have designated as higher-risk.

The purpose of this series of code changes proposed by Fire Safe North America is to encourage the debate in the code development process to identify what constitutes resilient buildings, and begin to identify issues that will become the basis for "new minimum requirements" for increased building resiliency.

Responding to the challenge of mitigating damage and resilient buildings is an admittedly complex topic. Fire Safe North America proposals are intended to reduce the total reliance of a community and its firefighters on automatic sprinkler systems in disaster-prone areas of the country where the water supply and/or power are likely to be interrupted, or are likely to have water supply system operational issues. The proposals, if approved, will fortify the building code requirements for the most vulnerable buildings to fire - Type IIB, IIIB, and VB construction, which are also classified as Risk Category IV in Table 1604.5, and in high-risk, disaster prone regions. The proposals modify the following code requirements in such buildings:

1. Reduce allowable area limits.
2. Protect the path of egress by limiting travel distances.
3. Protect the path of egress by protecting corridors.
4. Require higher fire resistance ratings for occupancy separations.
5. Require higher fire resistance ratings for building elements.

These proposals are intended to be conservative so as to promote community resiliency and disaster mitigation by protecting essential buildings with both sprinkler protection AND fire resistance rated compartmentation. These proposals may be fairly considered to be the proverbial "belt and suspenders" approach, requiring both sprinkler protection and increased fire resistance rated compartmentation in specific buildings in high risk areas for disasters.

Historically, the code has been written using the general assumption that automatic sprinklers will operate satisfactorily and there will be suitable power for such building operations. Code users design and build assuming that firefighters will be able to respond at their normal efficiencies. In some parts of the country, buildings impacted by disasters may remain without reliable water and/or power for a considerable period of time, well after the occurrence of the disaster. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself. Total reliance on an uninterrupted power and water supply may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

For example, more than 15% of the U.S. population lives in potential major earthquake areas. 41 states and territories have moderate to high risk. There is a

real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also building-to-building fire spread. On October 17, 1989, a 7.1 earthquake in Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. On January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes. 85 spread to adjacent buildings and 10 approached or reached conflagration status. 1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone.

In 1997, the Red River flooded Grand Forks, North Dakota, causing $3.7 billion in flood losses, and displaced thousands of families and businesses. Similar data of increased fire incidents are available in other flood and hurricane-prone areas.

Undoubtedly, this will increase the cost of construction in these specific buildings. However, a recent FEMA's 2010 report "Mitigation's Value to Society" statement described how mitigation is an investment that needs to be made. A recent study by the NIBS Multihazard Mitigation Council (MMC) identified that each dollar spent on mitigation saves an average of $4.00 in disaster recovery.

Links:

http://www.dhses.ny.gov/oem/mitigation/documents/mitigations-value-to-society.pdf

The two-volume NIBS MMC study report is available for free download at:

http://www.nibs.org/index.php/mmc/projects/nhms

Cost Impact: Will increase the cost of construction

This code change proposal will increase the cost of construction of some building types.

E97-15

E101-15

1018.6 (New); (IFC[BE] 1018.6 (New))

Proposed Change as Submitted

Proponent : Bryan Romney, University of Utah, Salt Lake City, Utah, representing self (bryan.romney@fm.utah.edu)

2015 International Building Code

Add new text as follows:

1018.6 **Aisle measurement** The clear width for aisles and aisle accessways shall be measured to walls, edges of seating and tread edges except for permitted projections.

> **Exception:** The clear width of aisles and aisle accessways adjacent to seating at tables shall be permitted to be measured in accordance with Section 1029.12.1.

Reason: The code requirements for seating at tables for all occupancy groups and uses were relocated from the 2009 IBC Section 1017.4 to Section 1028.10.1 under the ASSEMBLY section in the 2012 IBC. Code Change Proposal E140-09/10 was approved to relocate Seating at tables to Section 1028. In the 2015 IBC this requirement was modified and relocated to Section 1029.12.1, still under the ASSEMBLY section.
The reason for this proposed change is to establish the requirements for seating at tables in Section 1018 AISLES which can only be found in Section 1029.12.1. Occupancy groups other than Assembly such as Groups B and M certainly have aisles with seating located at desks, counters, and tables which need to be regulated. It is neither logical nor possible to regulate seating at tables for non-assembly occupancy groups or uses if the requirements are located in Section 1029 ASSEMBLY.

For example, research laboratories (Group B occupancy) typically have benches and seating on double and single loaded aisles. Without this proposed change to the code, there is no direct requirement to regulate aisle widths because seating at tables and benches is located in the Assembly section 1029.

Group M occupancies also have aisles with seating at tables which need to be regulated. Section 1029 Assembly occupancies is not the place to look for these requirements.

Cost Impact: Will not increase the cost of construction
This is simply a clarification of the requirements for seating at tables for all occupancy groups and uses

E101-15 : 1018.6 (New)-ROMNEY3598

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is a conflict with Section 1018.4. The proposed text need to address how aisles should be measured.

Individual Consideration Agenda

Public Comment 1:

Proponent : Bryan Romney, representing self (bryan.romney@fm.utah.edu) requests Approve as Submitted.

Commenter's Reason: The only comment coming from the Committee was that this proposed code change created a conflict with Section 1018.4 and it should stipulate how aisles are to be measured. To address the conflict with Section 1018.4, the proposed change does not conflict with Group M aisle accessways. The prescriptive elements of 1018.4 are specified in that section only and the proposed Section 1018.6 does not modify or add confusiont to 1018.4. As shown in the Reason statement of the original proposal, the purpose of this change was to add clarity to Section 1018 for usage and occupancies other than Assembly. The code requirements for seating at tables for all occupancy groups and uses were relocated from the 2009 IBC Section 1017.4 to Section 1028.10.1 under the ASSEMBLY section in the 2012 IBC. Code Change Proposal E140-09/10 was approved to relocate Seating at tables to Section 1028. In the 2015 IBC this requirement was modified and relocated to Section 1029.12.1, still under the ASSEMBLY section.

The reason for this proposed change is to establish the requirements for seating at tables in Section 1018 AISLES which can only be found in Section 1029.12.1. Occupancy groups other than Assembly such as Groups B and M certainly have aisles with seating located at desks, counters, and tables which need to be regulated. It is neither logical nor possible to regulate seating at tables for non-assembly occupancy groups or uses if the requirements are located in Section 1029 ASSEMBLY. Rather than being redundant with how aisles are measured for seating at tables, this proposed change simply references 1019.12.1.
For example, research laboratories (Group B occupancy) typically have benches and seating on double and single loaded aisles. Without this proposed change to the code, there is no direct requirement to regulate aisle widths because seating at tables and benches is located in the Assembly section 1029.

Group M occupancies also have aisles with seating at tables which need to be regulated. Section 1029 Assembly occupancies is not the place to look for these requirements.

There are no conflicts in Section 1018 with this code change. This code change should be approved as submitted.

E101-15

E102-15

202, 1006.3, 1006.3.1, 1017.3.1, 1019.2(New), 1019.3, 1019.4, 1023.2; (IFC[BE] 1006.3, 1006.3.1, 1017.3.1, 1019.2(New), 1019.3, 1019.4, 1023.2)

Proposed Change as Submitted

Proponent: Gregory Keith, Professional heuristic Development, representing The Boeing Company (grkeith@mac.com); Stephen Thomas (sthomas@coloradocode.net) Colorado Code Consulting, LLC, representing self

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

EXIT ACCESS STAIRWAY. ~~A *stairway* with the~~An enclosed or unenclosed exit access ~~portion of the means~~ component that defines and provides a path of egress ~~system~~ travel.

1006.3 Egress from stories or occupied roofs. The *means of egress* system serving any *story* or occupied roof shall be provided with the number of *exits* or access to *exits* , or combination thereof, based on the ~~aggregate~~ cumulative *occupant load* served in accordance with this section. ~~The *path of egress travel* to an *exit* shall not pass through more than one adjacent *story*.~~

1006.3.1 Egress based on occupant load. Each *story* ~~and~~ or occupied roof shall have the minimum number of independent *exits*, or access to *exits*, or combination thereof, as specified in Table 1006.3.1. A single *exit* or access to a single *exit* shall be permitted in accordance with Section 1006.3.2. The required number of *exits*, or *exit access stairways* or *ramps* providing access to *exits*, from any *story* or occupied roof shall be maintained until arrival at the *exit discharge* or a *public way*.

1017.3.1 Exit access stairways and ramps. Travel distance on unenclosed portions of *exit access stairways* or *ramps* shall be included in the *exit access* travel distance measurement. The measurement along *stairways* shall be made on a plane parallel and tangent to the *stair* tread *nosings* in the center of the *stair* and landings. The measurement along *ramps* shall be made on the walking surface in the center of the *ramp* and landings.

Add new text as follows:

1019.2 Construction. Where exit access stairways and ramps are required to be enclosed by other provisions of this section, they shall comply with the provisions of Section 1023.

Revise as follows:

~~**1019.2**~~ **1019.3 All occupancies.** *Exit access stairways* and *ramps* that serve floor levels within a single story are not required to be enclosed.

~~**1019.3**~~ **1019.4 Occupancies other than Groups I-2 and I-3.** In other than Group I-2 and I-3 occupancies, floor openings containing *exit access stairways* or *ramps* that do not comply with one of the conditions listed in this section shall be enclosed~~ with a shaft enclosure constructed in accordance with Section 713~~.

1. *Exit access stairways* and *ramps* that serve or atmospherically communicate between only two stories. Such interconnected stories shall not be open to other stories.
2. In Group R-1, R-2 or R-3 occupancies, *exit accessstairways* and *ramps* connecting four stories or less serving and contained within an individual *dwelling unit* or *sleeping unit* or *live/work unit.*
3. *Exit access stairways* serving and contained within a Group R-3 congregate residence or a Group R-4 facility~~ are not required to be enclosed~~.
4. *Exit access stairways* and *ramps* in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the *stairway* or *ramp* and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.
5. *Exit access stairways* and *ramps* within an *atrium* complying with the provisions of Section 404.
6. *Exit access stairways* and *ramps* in *open parking garages* that serve only the parking garage.
7. *Exit access stairways* and *ramps* serving open-air seating complying with the *exit access* travel distance requirements of Section 1029.7.
8. *Exit access stairways* and *ramps* serving the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, *places of religious worship*, auditoriums and sports facilities.

~~**1019.4**~~ **1019.5 Group I-2 and I-3 occupancies.** In Group I-2 and I-3 occupancies, floor openings between stories containing *exit access stairways* or *ramps* are required to be enclosed~~ with a shaft enclosure constructed in accordance with Section 713~~.

> **Exception:** In Group I-3 occupancies, *exit access stairways* or *ramps* constructed in accordance with Section 408 are not required to be enclosed.

1023.2 Construction. Enclosures for *interior exit stairways* and *ramps* shall be constructed as *fire barriers* in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. *Interior exit stairway* and *ramp* enclosures shall have a *fire-resistance rating* of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories

connected by the *interior exit stairways* or *ramps* shall include any *basements*, but not any *mezzanines*. *Interior exit stairways* and *ramps* shall have a *fire-resistance rating* not less than the floor assembly penetrated, but need not exceed 2 hours.

~~Exceptions~~ Exception:

1. *Interior exit stairways* and *ramps* in Group I-3 occupancies in accordance with the provisions of Section 408.3.8.
2. ~~*Interior exit stairways* within an *atrium* enclosed in accordance with Section 404.6.~~

Reason: Code change proposal E5-09/10 formalized the technical relationship between interior exit stairways and exit access stairways. Previously, the issue was confused by a number of exceptions to former exit enclosure provisions. This proposal is intended to further clarify the applicable provisions and accomplish some necessary technical adjustments.
First, the Section 202 definition of exit access stairway has been modified so as to be consistent with the terminology used in the definitions of two other exit access components: aisles and corridors.

Section 1006.3 has been modified to clarify that combinations of exits or access to exits at other building levels may be used to satisfy multiple exit requirements. That is, a story may have two exits, two exit access stairways or ramps leading to exits at other building levels (within exit access travel distance limitations), or one of each. Also, the term "aggregate" occupant loads has been changed to "cumulative" so as to be consistent with the provisions of Section 1004.1.1. The last sentence of Section 1006.3, which limits exit access travel to only one adjacent story, is deleted. This provision was not a part of ICC Code Technology Committee proposal E5. This issue goes to the heart of the original intent of E5. Fire and smoke migration limits have been long identified in the IBC and former legacy codes. They define acceptable atmospheric boundaries under specific design conditions. It is only logical that horizontal and vertical travel within prescribed limitations should be allowed to include that number of stories permitted by any applicable design condition as described in Section 1019.3.

2009 IBC exit enclosure provisions contained numerous exceptions that allowed for extended travel on unenclosed stairways. Examples include atriums, single family residences and open parking garages. The retention of the current adjacent story restriction will simply proliferate exceptions that will return to the former technical status quo. One such exception has already been approved for inclusion in 2015 IBC Section 1023.2 that addresses the atrium design condition. A package of exceptions addressing multi-story residential occupancies has been submitted for consideration during this code development cycle. Approval of this proposal will render that submittal as unnecessary.

It should be noted that removal of the current single adjacent story restriction will not allow for carte blanche multi-story access to exits. The default requirement at Section 1019.3 is that <u>all</u> exit access stairways be enclosed. That section contains a list of eight conditions where unenclosed exit access stairways are permitted. The first is the most commonly used and allows for two story open stairways in other than Group I-2 and I-3 occupancies. This provision inherently complies with the single adjacent story limitation. The remaining seven items are specific in nature and their tenability limits have long been contained in the IBC. To circumnavigate the adjacent story travel restriction, exceptions have been approved or are proposed for six of the seven design conditions. So effectively, removal of the provision will have virtually no effect on means of egress design. Elimination of the growing list of exceptions in favor of a comprehensive base requirement is the preferred method of addressing the design condition.

Section 1006.3.1 has been modified to recognize combinations of exits or access to exits so as to be consistent with Section 1006.3.

An important change has been made to Section 1019, exit access stairways. The technical requirements for interior exit stairways (an exit component) are easily

established. Typically, all interior exit stairways are enclosed with fire resistance-rated construction and they extend to the exterior of the building. With exit access stairways, there are two issues. One is their purpose as a means of egress component. Also of concern are building fire and smoke migration limits. Recent IBC editions had clarified that it is permissible to access exits at other building levels by way of exit access stairways or ramps. The general architectural need is to have an unenclosed exit access stairway(s) within a given portion of the building having common tenancy. Historical fire and smoke migration limits, however, limit the number of open stories that an unenclosed exit access stairway can serve. Numbers of stories greater than these limits would require the enclosure of exit access stairways based on shaft protection requirements.

The resultant 2012 IBC system was logical and clarified previous requirements. That said, it overlooked means of egress occupant expectation concerns and some theoretical technical issues. First, there is no requirement for an enclosed exit access stairway to extend to the exterior of the building. Such a stairway may terminate at any building level. Additionally, there is no requirement to maintain exit access stairway rating continuity simialr to that required for rated corridors. It is believed that due to occupant conditioning, that there is the expectation that when a person enters an enclosed stairway, that they are in a relatively safe area that will lead to the exterior of the building. Another complication is that travel to exits at other building levels is permitted where the exit access travel distance does not exceed that allowed. An enclosed exit access stairway may allow for acceptable travel limitations; however, remaining portions of the same enclosure would exceed requirements. The point being that occupants are not aware of when they should leave the exit access stairway enclosure--an exit access component--so as to meet exit access travel distance requirements.

The original purpose of the exit access stairway concept was to allow for unenclosed, non-rated interior stairways within building spaces so as to allow for occupant circulation and access to exits at other building levels. To meet occupant expectations and increase fire and life safety, shaft enclosure requirements are proposed to be replaced by interior exit stairway construction requirements. This also resolves the extended travel within an exit access component issue because occupants would be entering a formal exit component.

This apparent upgrade is less impactful that might be thought. Construction requirements for interior exit stairways and enclosed exit access stairways are virtually identical. The primary difference ocurrs with opening and penetration protection requirements. Obviously, interior exit stairway opening and penetration provisions are better suited to protect occupants in the means of egress as opposed to present utility protection concerns.

Approval of this proposal would add balance to current IBC means of egress provisions and react to likely occupant expectation of enclosed interior stairways. Approval will result in functional and understandable provisions and increase the level of occupant safely.

Cost Impact: Will increase the cost of construction
Although the opening protection requirements for interior exit stairways are apparently more stringent, they may or may not actually be more expensive than shaft protection requirements.

E102-15 : 1006.3-KEITH4635

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Typical travel along an exit access stairway should not be for more than two stories for all uses. If this comes back with a public comment it needs to coordinate with E27.
This revision would allow for an atrium to have unlimited number of stories included in travel down the exit access stairway (Section 1023.2), which could be a concern. There is a conflict with the number of stories for escalators and stairways that have protection offered by draft curtains.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Gregory Keith, representing The Boeing Company (grkeith@mac.com); Stephen Thomas, Colorado Code Consulting, LLC, representing Self (sthomas@coloradocode.net) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

EXIT ACCESS STAIRWAY. ~~A~~ An enclosed or unenclosed *stairway* ~~with~~ within the exit access portion of the means of egress system.

Commenter's Reason: Item E 102-15 was very comprehensive in that it addressed a number of issues relative to exit access stairways. This may have proven confusing for means of egress committee members. A series of public comments is being offered to address each technical concern for membership consideration. This public comment speaks only to a quasi-editiorial change to the definition of exit access stairway.
The proposed change to the definition of exit access stairway in the original submittal was intended to align with the current definitions of aisle and corridor. This public comment returns the definition to that currently in the 2015 IBC except that it qualifies that such stairway may be enclosed or unenclosed based on applicable Chapter 10 provisions. This change generally describes alternative enclosure conditions within the definition for the benefit of users.

Public Comment 2:

Proponent : Gregory Keith, representing The Boeing Company (grkeith@mac.com); Stephen Thomas, Colorado Code Consulting, LLC, representing Self (sthomas@coloradocode.net) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1006.3 Egress from stories or occupied roofs. The *means of egress* system serving any *story* or occupied roof shall be provided with the number of *exits* or access to *exits*, or combination thereof, based on the ~~aggregate~~ cumulative *occupant load* served in accordance with this section. The *path*

of egress travel to an *exit* shall not pass through more than one adjacent *story*.

1006.3.1 Egress based on occupant load. Each *story* and occupied roof shall have the minimum number of independent *exits*, or access to *exits*, or combination thereof, as specified in Table 1006.3.1. A single *exit* or access to a single *exit* shall be permitted in accordance with Section 1006.3.2. The required number of *exits*, or *exit access stairways* or *ramps* providing access to *exits*, from any *story* or occupied roof shall be maintained until arrival at the *exit discharge* or a *public way*.

Commenter's Reason: Item E 102-15 was very comprehensive in that it addressed a number of issues relative to exit access stairways. This may have proven confusing for means of egress committee members. A series of public comments is being offered to address each technical concern for membership consideration. This public comment is virtually editorial.
This proposal simply clarifies that required number of exits provisions for a given story can be satisfied by exits or access to exits at another story or a combination of the two. Some may interpret the current provision as an either/or conditon as opposed to both. Additionally, the word "aggregate" has been replaced by "cumulative" so as to be consistent with the provisions of Section 1004.1.1.

Public Comment 3:

Proponent : Gregory Keith, representing The Boeing Company (grkeith@mac.com); Stephen Thomas, Colorado Code Consulting, LLC, representing Self (sthomas@coloradocode.net) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1017.3.1 Exit access stairways and ramps. Travel distance on unenclosed portions of *exit access stairways* or *ramps* shall be included in the *exit access* travel distance measurement. The measurement along *stairways* shall be made on a plane parallel and tangent to the *stair* tread *nosings* in the center of the *stair* and landings. The measurement along *ramps* shall be made on the walking surface in the center of the *ramp* and landings.

1019.2 Construction Where exit access stairways and ramps are required to be enclosed by other provisions of this section, they shall comply with the provisions of Section 1023.

~~**1019.2**~~ **1019.3 All occupancies.** *No change to text.*

~~**1019.3**~~ **1019.4 Occupancies other than Groups I-2 and I-3.** In other than Group I-2 and I-3 occupancies, floor openings containing *exit access stairways* or *ramps* that do not comply with one of the conditions listed in this section shall be enclosed ~~with a shaft enclosure constructed in accordance with Section 713~~.

1. *Exit access stairways* and *ramps* that serve or atmospherically communicate between only two stories. Such interconnected stories shall not be open to other stories.

2. In Group R-1, R-2 or R-3 occupancies, *exit accessstairways* and *ramps* connecting four stories or less serving and contained within an individual *dwelling unit* or *sleeping unit* or *live/work unit.*
3. *Exit access stairways* serving and contained within a Group R-3 congregate residence or a Group R-4 facility are not required to be enclosed.
4. *Exit access stairways* and *ramps* in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the *stairway* or *ramp* and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.
5. *Exit access stairways* and *ramps* within an *atrium* complying with the provisions of Section 404.
6. *Exit access stairways* and *ramps* in *open parking garages* that serve only the parking garage.
7. *Exit access stairways* and *ramps* serving open-air seating complying with the *exit access* travel distance requirements of Section 1029.7.
8. *Exit access stairways* and *ramps* serving the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, *places of religious worship*, auditoriums and sports facilities.

~~1019.4~~ 1019.5 Group I-2 and I-3 occupancies. In Group I-2 and I-3 occupancies, floor openings between stories containing *exit access stairways* or *ramps* are required to be enclosed~~ with a shaft enclosure constructed in accordance with Section 713~~.

> **Exception:** In Group I-3 occupancies, *exit access stairways* or *ramps* constructed in accordance with Section 408 are not required to be enclosed.

Commenter's Reason: Item E 102-15 was very comprehensive in that it addressed a number of issues relative to exit access stairways. This may have proven confusing for means of egress committee members. A series of public comments is being offered to address each technical concern for membership consideration. This public comment addresses the construction requirements for enclosed exit access stairways. Currently, where exit access stairways are required to be enclosed by Section 1019.3 or 1019.4, those sections state that they should be enclosed by a shaft enclosure constructed in accordance with Section 713. This proposal deletes those references and replaces them with a new construction provision in Section 1019.2 that requires that enclosed exit access stairways comply with Section 1023 for interior exit stairways.

The current shaft enclosure construction requirement has legacy origins for convenience stairways. Exit access stairways, however, are formal means of egress components and their construction should be consistent with occupant safety needs. This apparent upgrade is less impactful that might be thought. Construction requirements for interior exit stairways and enclosed exit access stairways are virtually identical. The primary difference ocurrs with opening and penetration protection requirements. Obviously, interior exit stairway opening and penetration provisions are better suited to protect occupants in the means of egress as opposed to present utility protection concerns.

Additionally, there are functional concerns relative to stairway enclosure construction. First, there is no current requirement for an enclosed exit access

stairway to extend to the exterior of the building. Such a stairway may terminate at any building level. Additionally, there is no requirement to maintain exit access stairway rating continuity simialr to that required for rated corridors. It is believed that due to occupant conditioning, that there is the expectation that when a person enters an enclosed stairway, that they are in a relatively safe area that will lead to the exterior of the building. Another complication is that travel to exits at other building levels is permitted where the exit access travel distance does not exceed that allowed. An enclosed exit access stairway may allow for acceptable travel limitations; however, remaining portions of the same enclosure would exceed requirements. The point being that occupants are not aware of when they should leave the exit access stairway enclosure (an exit access component) so as to meet exit access travel distance requirements.

The original purpose of the exit access stairway concept was to allow for unenclosed, non-rated interior stairways within building spaces so as to allow for occupant circulation and access to exits at other building levels. To meet occupant expectations and increase fire and life safety, shaft enclosure requirements are proposed to be replaced by interior exit stairway construction requirements. This also resolves the extended travel within an exit access component issue because occupants would be entering a formal exit component. Also, Section 1017.3.1 is clarified to state that exit access travel on unenclosed exit access stairways shall be included in the exit access travel distance measurement.

Approval of this public comment will increase occupant safety and be consistent with current means of egress philosophy.

Public Comment 4:

Proponent : Gregory Keith, representing The Boeing Company (grkeith@mac.com); Stephen Thomas, Colorado Code Consulting, LLC, representing Self (sthomas@coloradocode.net) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1023.2 Construction. Enclosures for *interior exit stairways* and *ramps* shall be constructed as *fire barriers* in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. *Interior exit stairway* and *ramp* enclosures shall have a *fire-resistance rating* of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the *interior exit stairways* or *ramps* shall include any *basements*, but not any *mezzanines*. *Interior exit stairways* and *ramps* shall have a *fire-resistance rating* not less than the floor assembly penetrated, but need not exceed 2 hours.

~~Exceptions~~ Exception:

1. *Interior exit stairways* and *ramps* in Group I-3 occupancies in accordance with the provisions of Section 408.3.8.
2. ~~*Interior exit stairways* within an *atrium* enclosed in accordance with Section 404.6.~~

Commenter's Reason: Item E 102-15 was very comprehensive in that it addressed a number of issues relative to exit access stairways. This may have proven confusing for means of egress committee members. A series of public comments is being offered to address each technical concern for membership consideration.
The published Means of Egress Code Committee reason for disapproval of E 102-15

included the following statement: "This revision would allow for an atrium to have unlimited number of stories included in travel down the exit access stairway (Section 1023.2), which could be a concern." Perhaps the committee misunderstood the intent of the proposal. E 102-15 actually intended to make atrium exit access travel provisions more restrictive than currently allowed. The section referenced in the reason statement (1023.2) applies to interior exit stairways (exit components) as opposed to exit access stairways (Section 1019). If the committee is concerned with travel down an unlimited number of stories on an exit access stairway, they should be more concerned about the current Section 1023.2, Exception 2 that allows for unlimited travel on an unenclosed interior exit stairway.

This exception to interior exit stairway enclosure construction within an atrium space was introduced in the 2015 Edition of the IBC. The proponent's published reason statement contended that the inherent one-hour atrium enclosure protection and required smoke control was equivalent to a one-hour interior exit stairway enclosure. That may or may not be true; however, such exit stairways serving four or more stories are required to be of 2-hour fire resistance-rated construction.

This provision is also philosophically flawed on many levels. Interior exit stairway enclosures are to be used for no other purpose than as a means of egress. Opening and penetration protection requirements are intended to limit exposure of the enclosure. The current exception allows occupants unlimited egress travel distance down an unenclosed stairway within the smoke exhaust plume. In high-rise buildings, such stairways are required to be within smokeproof enclosures.

Additionally, Section 905.4 requires that a standpipe hose connection be located in every required interior exit stairway at an intermediate landing between stories. Typically, an interior exit stairway enclosure provides a protected space for fire department operations. Obviously, there is no passive standpipe hose connection protection in an unenclosed interior exit stairway.

Traditionally, exit access stairways within atrium spaces have been allowed to be unenclosed (Section 1019.3, Condition 5). However, exit access travel distance limitations at Section 1017.2 would apply. In fact, Table 1017.2, Footnote a references Section 404.9 travel distance limitations through an atrium space.

This public comment deletes this questionable unenclosed interior exit stairway exception and addresses the means of egress code committee's valid concern about unlimited travel within an atrium space. In summary, the published committee reason statement for disapproval of E 102-15 indicates that there may have some confusion on the intent and effect of the initial proposal. Approval of this public comment is consistent with the committee's stated concerns and current IBC unenclosed means of egress stairway philosophy which was formalized in the 2012 Edition.

E102-15

E105-15

1020.1; (IFC[BE] 1020.1)

Proposed Change as Submitted

Proponent : Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

1020.1 Construction. *Corridors* shall be fire-resistance rated in accordance with Table 1020.1. The *corridor* walls required to be fire-resistance rated shall comply with Section 708 for *fire partitions*.

In addition, corridors in buildings of Types IIB, IIIB, and VB construction and assigned Risk Categories III and IV in Table 1604.5, other than Group I, shall have a fire resistance rating of not less than 1 hour where such buildings are any of the following:

1. Assigned a Seismic Design Category C or D in Table 1613.3.5(1).
2. Located in a flood hazard area established in accordance with Section 1612.3.
3. Located in a *hurricane-prone regions*.

Exceptions:

1. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group E where each room that is used for instruction has not less than one door opening directly to the exterior and rooms for assembly purposes have not less than one-half of the required *means of egress* doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.
2. A *fire-resistance rating* is not required for *corridors* contained within a *dwelling unit* or *sleeping unit* in an occupancy in Groups I-1 and R.
3. A *fire-resistance rating* is not required for *corridors* in *open parking garages*.
4. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group B that is a space requiring only a single *means of egress* complying with Section 1006.2.
5. *Corridors* adjacent to the *exterior walls* of buildings shall be permitted to have unprotected openings on unrated *exterior walls* where unrated walls are permitted by Table 602 and unprotected openings are permitted by Table 705.8.

Reason: As hazard events, both naturally-occurring and man-made, are increasing in number and severity in the United States and around the world, the resilience of communities and the individual buildings within those communities is becoming of vital importance.
A National Institute of Building Sciences Publication (May, 2014) entitled "Moving Forward: Findings and Recommendations", states that "while a long history of

building codes has laid the foundation for addressing the impacts of natural and man-made hazards, changes in the frequency and severity of events have brought new challenges — challenges requiring the engagement and support of policymakers. While building codes serve as the minimum requirements for life-safety in the building stock, basic life-safety protections do not fully address building performance requirements to achieve resilience."

Mitigation includes, among other things, fortifying buildings so that they are less likely to be severely damaged or completely destroyed during or immediately after a disaster. It is the key to recovery after a disaster. Mitigation allows individuals and communities to lessen post-disaster disruption and rebuild more quickly. States and cities have started implementing more stringent requirements in specific geographic areas they have designated as higher-risk. The purpose of this series of code changes proposed by Fire Safe North America is to encourage the debate in the code development process to identify what constitutes resilient buildings, and begin to identify issues that will become the basis for "new minimum requirements" for increased building resiliency.

Responding to the challenge of mitigating damage and resilient buildings is an admittedly complex topic. Fire Safe North America proposals are intended to reduce the total reliance of a community and its firefighters on automatic sprinkler systems in disaster-prone areas of the country where the water supply and/or power are likely to be interrupted, or are likely to have water supply system operational issues. The proposals, if approved, will fortify the building code requirements for the most vulnerable buildings to fire - Type IIB, IIIB, and VB construction, which are also classified as Risk Category III and IV in Table 1604.5, and in high-risk, disaster prone regions. The proposals modify the following code requirements in such buildings:

1. Reduce allowable area limits
2. Protect the path of egress by limiting travel distances
3. Protect the path of egress by protecting corridors
4. Require higher fire resistance ratings for occupancy separations
5. Require higher fire resistance ratings for building elements

These proposals are intended to be conservative so as to promote community resiliency and disaster mitigation by protecting essential buildings with both sprinkler protection AND fire resistance rated compartmentation. These proposals may be fairly considered to be the proverbial "belt-and suspenders" approach, requiring both sprinkler protection and increased fire resistance rated compartmentation in specific buildings in high risk areas for disasters.

Historically, the code has been written using the general assumption that automatic sprinklers will operate satisfactorily and there will be suitable power for such building operations. Code users design and build assuming that firefighters will be able to respond at their normal efficiencies. In some parts of the country, buildings impacted by disasters may remain without reliable water and/or power for a considerable period of time, well after the occurrence of the disaster. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself. Total reliance on an uninterrupted power and water supply may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

For example, more than 15% of the U.S. population lives in potential major earthquake areas. 41 states and territories have moderate to high risk. There is a real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also building-to-building fire spread. In October 17, 1989, a 7.1 earthquake in Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. On January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes. 85 spread to adjacent buildings and 10 approached or reached conflagration status.

1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone.

In 1997, the Red River flooded Grand Forks, North Dakota, causing $3.7 billion in flood losses, and displaced thousands of families and businesses. Similar data of increased fire incidents are available in other flood and hurricane-prone areas.

Undoubtedly, this will increase the cost of construction in these specific buildings. However, a recent FEMA's 2010 report "Mitigation's Value to Society" statement described how mitigation is an investment that needs to be made. A recent study by the NIBS Multihazard Mitigation Council (MMC) identified that each dollar spent on mitigation saves an average of $4.00 in disaster recovery.

Links:
http://www.dhses.ny.gov/oem/mitigation/documents/mitigations-value-to-society.pdf

The two-volume NIBS MMC study report is available for free download at:
http://www.nibs.org/index.php/mmc/projects/nhms

Cost Impact: Will increase the cost of construction
This increases the fire ratings for corridors in essential buildings to the hourly ratings specified for corridors in non-sprinklered buildings, and the increased cost will be consistent with the costs for non sprinklered buildings. The increased costs are only proposed for limited geographic areas.

E105-15 : 1020.1-LOVELL5278

Public Hearing Results

Committee Action: Disapproved

Committee Reason: A fire resistance rating will not always stay in place after a natural disaster. There was no technical justification for why Categories C and D were included or why E and F were excluded. The was no technical justification for whey construction types 2B. 3B and 5B were more of a hazard to safety than other types. The is no link between corridor fire resistance and resistance for hurricanes or tornadoes. Safety after a natural disaster should include shutting off utilities to damages buildings – there is no such requirement here. This proposal, and a similar proposal, E97, were both disapproved for consistent action.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1020.1 Construction. *Corridors* shall be fire-resistance rated in accordance with Table 1020.1 and where applicable in Section 1020.1.1. The *corridor* walls required to be fire-resistance rated shall comply with Section 708 for *fire partitions*.

~~In addition, corridors in buildings of Types IIB, IIIB, and VB construction and assigned Risk Categories III and IV in Table 1604.5, other than Group I, shall have a fire resistance rating of not less than 1 hour where such buildings are any of the following:~~

1. ~~Assigned a Seismic Design Category C or D in Table 1613.3.5(1).~~
2. ~~Located in a flood hazard area established in accordance with Section 1612.3.~~
3. ~~Located in a *hurricane-prone regions*.~~

Exceptions:

1. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group E where each room that is used for instruction has not less than one door opening directly to the exterior and rooms for assembly purposes have not less than one-half of the required *means of egress* doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.
2. A *fire-resistance rating* is not required for *corridors* contained within a *dwelling unit* or *sleeping unit* in an occupancy in Groups I-1 and R.
3. A *fire-resistance rating* is not required for *corridors* in *open parking garages*.
4. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group B that is a space requiring only a single *means of egress* complying with Section 1006.2.
5. *Corridors* adjacent to the *exterior walls* of buildings shall be permitted to have unprotected openings on unrated *exterior walls* where unrated walls are permitted by Table 602 and unprotected openings are permitted by Table 705.8.

1020.1.1 Corridors in sprinklered buildings. Other than Group I, corridors in sprinklered buildings of Types IIB, IIIB and VB construction assigned to Risk Category IV in accordance with Section 1604.5, shall have a *fire-resistance rating* of not less than 1 hour where such buildings are any of the following:

1. Assigned to Seismic Design Category D or F in accordance with Section 1613.3.5.
2. Located in a *special flood hazard area* and established in accordance with Section 1612.3.
3. Located in a windborne-debris region based on Figure 1609.3(2).

Exception: Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, that are provided with a secondary water supply in accordance with Section 403.3.3, and where the fire pumps are protected against interrupton of service in accordance with Section 913.

Commenter's Reason: The increased fire resistivity required by this proposal is intended to apply ONLY to buildings that are ALL of the following:

- Classified in the highest risk category.
- Located in the highest risk, disaster-prone regions for floods, hurricanes and

seismic activity.
- Type IIB, IIIB or VB construction.

It excludes sprinklered buildings that have emergency backup systems for water and power in those regions.

Although the cause is debated, naturally-occurring and man-made disasters are increasing in number and severity in the United States and around the world. That fact is undisputed. The resilience of communities and the individual buildings within those communities is becoming of vital importance.

A National Institute of Building Sciences Publication (May, 2014) entitled "Moving Forward: Findings and Recommendations", states that "while a long history of building codes has laid the foundation for addressing the impacts of natural and man-made hazards, changes in the frequency and severity of events have brought new challenges — challenges requiring the engagement and support of policymakers. While building codes serve as the minimum requirements for life-safety in the building stock, basic life-safety protections do not fully address building performance requirements to achieve resilience."

Mitigation includes, among other things, fortifying buildings so that they are less likely to be severely damaged or completely destroyed during or immediately after a disaster. It is the key to recovery after a disaster. Mitigation allows individuals and communities to lessen post-disaster disruption and rebuild more quickly. States and cities have started implementing more stringent requirements in specific geographic areas they have designated as higher-risk.

The purpose of this series of code changes proposed by Fire Safe North America is to encourage the debate in the code development process to identify what constitutes resilient buildings, and begin to identify issues that will become the basis for "new minimum requirements" for increased building resiliency.

Responding to the challenge of mitigating damage and resilient buildings is an admittedly complex topic. Fire Safe North America proposals are intended to reduce the total reliance of a community and its firefighters on automatic sprinkler systems in disaster-prone areas of the country where the water supply and/or power are likely to be interrupted, or are likely to have water supply system operational issues. The proposals, if approved, will fortify the building code requirements for the most vulnerable buildings to fire - Type IIB, IIIB, and VB construction, which are also classified as Risk Category IV in Table 1604.5, and in high-risk, disaster prone regions. The proposals modify the following code requirements in such buildings:

1. Reduce allowable area limits.
2. Protect the path of egress by limiting travel distances.
3. Protect the path of egress by protecting corridors.
4. Require higher fire resistance ratings for occupancy separations.
5. Require higher fire resistance ratings for building elements.

These proposals are intended to be conservative so as to promote community resiliency and disaster mitigation by protecting essential buildings with both sprinkler protection AND fire resistance rated compartmentation. These proposals may be fairly considered to be the proverbial "belt and suspenders" approach, requiring both sprinkler protection and increased fire resistance rated compartmentation in specific buildings in high risk areas for disasters.

Historically, the code has been written using the general assumption that automatic sprinklers will operate satisfactorily and there will be suitable power for such building operations. Code users design and build assuming that firefighters will be able to respond at their normal efficiencies. In some parts of the country, buildings impacted by disasters may remain without reliable water and/or power for a considerable period of time, well after the occurrence of the disaster. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself. Total reliance on an uninterrupted power and water supply may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

For example, more than 15% of the U.S. population lives in potential major

earthquake areas. 41 states and territories have moderate to high risk. There is a real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also building-to-building fire spread. On October 17, 1989, a 7.1 earthquake in Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. On January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes. 85 spread to adjacent buildings and 10 approached or reached conflagration status. 1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone.

In 1997, the Red River flooded Grand Forks, North Dakota, causing $3.7 billion in flood losses, and displaced thousands of families and businesses. Similar data of increased fire incidents are available in other flood and hurricane-prone areas.

Undoubtedly, this will increase the cost of construction in these specific buildings. However, a recent FEMA's 2010 report "Mitigation's Value to Society" statement described how mitigation is an investment that needs to be made. A recent study by the NIBS Multihazard Mitigation Council (MMC) identified that each dollar spent on mitigation saves an average of $4.00 in disaster recovery.

Links:

http://www.dhses.ny.gov/oem/mitigation/documents/mitigations-value-to-society.pdf

The two-volume NIBS MMC study report is available for free download at:

http://www.nibs.org/index.php/mmc/projects/nhms

Cost Impact: Will increase the cost of construction

This code change proposal will increase the cost of construction of some building types.

E105-15

E110-15

1023.3.1; (IFC[BE] 1023.3.1)

Proposed Change as Submitted

Proponent : Raymond Grill, Arup, representing Arup (ray.grill@arup.com)

2015 International Building Code

Revise as follows:

1023.3.1 Extension. Where *interior exit stairways* and *ramps* are extended to an *exit discharge* or a *public way* by an *exit passageway*, the *interior exit stairway* and *ramp* shall be separated from the *exit passageway* by a *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both. The *fire-resistance rating* shall be not less than that required for the *interior exit stairway* and *ramp*. A *fire door* assembly complying with Section 716.5 shall be installed in the *fire barrier* to provide a *means of egress* from the *interior exit stairway* and *ramp* to the *exit passageway*. Openings in the *fire barrier* other than the *fire door* assembly are prohibited. Penetrations of the *fire barrier* are prohibited.

Exceptions:

1. Penetrations of the *fire barrier* in accordance with Section 1023.5 shall be permitted.
2. Separation between an *interior exit stairway* or *ramp* and the *exit passageway* extension shall not be required where there are no openings into the *exit passageway* extension.
3. <u>Separation between an interior exit stairway or ramp and the exit passageway extension shall not be required when the interior exit stair and the exit passageway extension are pressurized in accordance with Section 909.20.5.</u>

Reason: Pressurized stairs often discharge through an exit passageway. The exit passageway is also typically required to be pressurized since it is a coninuation of the pressurized stair enclosure. The system providing pressurization of the stair and passageway is typically the same system. Technical compliance would require separate systems if a separation is required to be maintained. The introduction of a door and fire barrier between the exit passageway and the stair creates an obstruction to airflow which inhibits the pressurization of the stair and passageway. The provision of a separation does not provide any added safety and could also impede egress.

Cost Impact: Will not increase the cost of construction
This code change will reduce the cost of construction where pressurized stairs discharge through an exit passageway extension. The door and fire barrier between the exit passageway extension and the stair would not be required.

E110-15 : 1023.3.1-GRILL5191

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: This exception is appropriate. In the situation where a stairway and exit passageway system is pressurized, the door is not needed, any may even be a problem for the system.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests Disapprove.

Commenter's Reason: I urge dissaproval of this code change. It is not necessary. Exception # 2 already allows for the condition of concern to be addressed. No technical justification was provided for the change other than stating that difficulties in pressurization necessitates the code change. E146–12 was submitted in the last cycle and was not approved; it proposed deleting exception # 3 to what was then Section 1022.01.1. The code change was not approved.

E110-15

E112-15

1023.5; (IFC[BE] 1023.5)

Proposed Change as Submitted

Proponent : William Koffel, representing Firestop Contractors International Association (wkoffel@koffel.com)

2015 International Building Code

Revise as follows:

1023.5 Penetrations. Penetrations into or through *interior exit stairways* and *ramps* are prohibited except for equipment and ductwork necessary for independent ventilation or pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and security systems and electrical raceway serving the *interior exit stairway* and *ramp* and terminating at a steel box not exceeding 16 square inches (0.010 m^2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communication openings, whether protected or not, between adjacent *interior exit stairways* and *ramps*.

> **Exception:** Membrane penetrations shall be permitted on the outside of the *interior exit stairway* and *ramp*. Such penetrations shall be protected in accordance with Section 714.3.2.

Reason: Building security systems, including cameras in stairways, are becoming more prevalent. If properly protected, a limited number of penetrations for security systems will not result in an unacceptable level of safety. NFPA 101-2015 requires stairway video monitoring in high-rise buildings having an occupant load of 4,000 or more persons.

Cost Impact: Will not increase the cost of construction
The proposed language addressed a limitation in the code regarding security systems being able to penetrate exit enclosures. If anything, the cost of construction will be decreased by allowing an acceptable way for installing such systems.

E112-15 : 1023.5-KOFFEL4844

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: This allowance for security systems to penetrate a stairway enclosure is appropriate. Security systems are needed for occupant safety. These systems can also be used for remote assessment of a stairway during an emergency. This is coordinated with NFPA 101.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests Disapprove.

Commenter's Reason: We are submitting this public comment because since the term security systems is not defined it is not clear what security systems are limited to. Is the security system for the use of the fire department? Can it be security wiring for controlled access or egress doors. Can it be for anti theft system in a retail setting? Can it be for the cable provided by my cable company used to provide cable tv and monitor my home security system? The code limits penetrations into interior exit stairways for a reason which is to improve reliability for the passive assembly. Most low voltage wiring installations are not inspected and this sets a precedent for numerous uncontrolled through and membrane penetrations strung along the exit stairway enclosure on the interior side..

E112-15

E113-15

1023.5, 1024.6; (IFC[BE] 1023.5, 1024.6)

Proposed Change as Submitted

Proponent : William King, City of Alexandria, representing Virginia Building Code Officials Association (william.king@alexandriava.gov)

2015 International Building Code

Revise as follows:

1023.5 Penetrations. Penetrations into or through *interior exit stairways* and *ramps* are prohibited except for equipment and ductwork necessary for independent ventilation or pressurization, ~~sprinkler piping~~*fire protection systems*, ~~standpipes~~ two-way communication systems, electrical raceway for fire department communication systems and electrical raceway serving the *interior exit stairway* and *ramp* and terminating at a steel box not exceeding 16 square inches (0.010 m^2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communication openings, whether protected or not, between adjacent *interior exit stairways* and *ramps*.

> ~~**Exception:** Membrane penetrations shall be permitted on the outside of the *interior exit stairway* and *ramp*. Such penetrations shall be protected in accordance with Section 714.3.2.~~

1024.6 Penetrations. Penetrations into or through an *exit passageway* are prohibited except for equipment and ductwork necessary for independent pressurization, ~~sprinkler piping~~*fire protection systems*, ~~standpipes~~ two-way communication systems, electrical raceway for fire department communication and electrical raceway serving the *exit passageway* and terminating at a steel box not exceeding 16 square inches (0.010 m^2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communicating openings, whether protected or not, between adjacent *exit passageways*.

> ~~**Exception:** Membrane penetrations shall be permitted on the outside of the *exit passageway*. Such penetrations shall be protected in accordance with Section 714.3.2~~.

Reason: The purpose of these two code sections are to protect the integrity of the exit enclosure and allow for safe egress for the occupants. The current exceptions, first included in the 2012 IBC, as written put the integrity of the exit enclosure at risk. The reason statement for the creation of this exception in the 2012 code stated:

"As currently written, a pull station next to a door into the stair, fire hose cabinets, fire extinguisher cabinets, request-to-exit devices related to access control locks, notification appliances, etc., are not permitted on the outside of the exit enclosure. This exceptions needs to clarify the intent of Sections 1022.4 and 1023.6".

The commentary for this section of the code states the following:

"The intent is to maintain the integrity of the enclosure for the exit access stairway."

"The exception allows for electrical boxes, "Exit" signs or fire alarm pull stations to be installed on the outside of the enclosure provided that the boxes are installed so that the required fire-resistance rating is not reduced."

The exception as it currently exists is significantly broader than just addressing those items. Using the exception, any and all items can penetrate the membrane of an exit enclosure without limitation to size or quantity as long as they are part of a tested penetration. This puts the exit enclosure at significant risk and degrades the overall safety afforded by an exit enclosure. As the code continues to reduce the times in which a rated exit enclosure is provided, the protection of these enclosures becomes even more critical to the safety of the building's occupants.

The current proposal looks to remove the blanket allowance for any system to be placed in the exit enclosure assembly. The inclusion of additional items in the main text of the section is designed to address the items noted as the basis for the original code change, but would keep the rated exit enclosure wall from being used as a chase for plumbing, fuel gas, med gas, low voltage wiring and any of the other myriad of hazards the current exception would allow.

Cost Impact: Will increase the cost of construction
This change would not allow the rated exit enclosure wall to be used as a chase for building services. This may require an additional chase to be constructed.

E113-15 : 1023.5-KING3314

Public Hearing Results

Committee Action: Approved as Modified

Modification:

1023.5 Penetrations. Penetrations into or through interior exit stairways and ramps are prohibited except for equipment and ductwork necessary for independent ventilation or pressurization, fire protection systems, two-way communication systems, electrical raceway for fire department communication systems and electrical raceway serving the interior exit stairway and ramp and terminating at a steel box not exceeding 16 square inches (0.010 m^2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communication openings, whether protected or not, between adjacent interior exit stairways and ramps.

> **Exception:** Membrane penetrations shall be permitted on the outside of the interior exit stairway and ramp. Such penetrations shall be protected in accordance with Section 714.3.2.

1024.6 Penetrations. Penetrations into or through an exit passageway are prohibited except for equipment and ductwork necessary for independent pressurization, fire protection systems, two-way communication systems, electrical raceway for fire department

communication and electrical raceway serving the exit passageway and terminating at a steel box not exceeding 16 square inches (0.010 m2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communicating openings, whether protected or not, between adjacent exit passageways.

> **Exception:** Membrane penetrations shall be permitted on the outside of the exit passageway. Such penetrations shall be protected in accordance with Section 714.3.2.

Committee Reason: The modification is to maintain the exceptions and is coordination with F49-15. The exceptions are needed to allow for outlets, light switches, fire alarm pull stations and exit signs.

In the main text, the change from 'sprinkler piping and standpipes' to 'fire protection systems' would allow for all systems used for fire fighting. The addition of the 'two-way communication system' allows for requirements associated with the fire fighters communication, the requirements in high rises for systems in the stairway every five floors, and areas of refuge.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

1023.5 Penetrations. Penetrations into or through *interior exit stairways* and *ramps* are prohibited except for equipment and ductwork necessary for independent ventilation or pressurization, *fire protection systems*, two-way communication systems, electrical raceway for fire department communication systems and electrical raceway serving the *interior exit stairway* and *ramp* and terminating at a steel box not exceeding 16 square inches (0.010 m^2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communication openings, whether protected or not, between adjacent *interior exit stairways* and *ramps*.

> **Exception:** Membrane penetrations required for the installation of recessed fire alarm devices, emergency lighting, exit signs and similar penetrating items shall be permitted on the outside of the interior exit stairway and ramp. Such penetrations shall be protected in accordance with Section 714.3.2.

1024.6 Penetrations. Penetrations into or through an *exit passageway*

are prohibited except for equipment and ductwork necessary for independent pressurization, *fire protection systems*, two-way communication systems, electrical raceway for fire department communication and electrical raceway serving the *exit passageway* and terminating at a steel box not exceeding 16 square inches (0.010 m^2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communicating openings, whether protected or not, between adjacent *exit passageways*.

> **Exception:** Membrane penetrations for the installation of recessed fire alarm devices, emergency lighting, exit signs and similar penetrating items shall be permitted on the outside of the exit passageway. Such penetrations shall be protected in accordance with Section 714.3.2.

Commenter's Reason: We submitted this public comment since the committee modification was too broad. Normally the membrane penetration is for a recessed item supplied with piping or wiring located within the wall. The code change as it was approved could allow a vertical piping chase in the wall cavity of an exit enclosure. The committee reason statement for the modification of the original code change states it is necessary for "outlets, light switches, fire alarm pull stations and exit signs".

Staff note: Public comments to FS49-15 and E113-15 include text pertaining to membrane penetration for the walls around shafts. Depending on the resolution of the public comments, there is a concern for possible conflicts between these sections.

Public Comment 2:

Proponent : William King, representing Virginia Building Code Officials Association (william.king@alexandriava.gov) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

1023.5 Penetrations. Penetrations into or through *interior exit stairways* and *ramps* are prohibited except for equipment and ductwork necessary for independent ventilation or pressurization, *fire protection systems*, two-way communication systems, electrical raceway for fire department communication systems and electrical ~~raceway serving the *interior exit stairway* and *ramp* and~~ raceways terminating at a steel box not exceeding 16 square inches (0.010 m^2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communication openings, whether protected or not, between adjacent *interior exit stairways* and *ramps*.

> ~~**Exception:** Membrane penetrations shall be permitted on the outside of the interior exit stairway and ramp. Such penetrations shall be protected in accordance with Section 714.3.2.~~

1024.6 Penetrations. Penetrations into or through an *exit passageway* are prohibited except for equipment and ductwork necessary for

independent pressurization, *fire protection systems*, two-way communication systems, electrical raceway for fire department communication and electrical ~~raceway serving the *exit passageway* and~~ raceways terminating at a steel box not exceeding 16 square inches (0.010 m^2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communicating openings, whether protected or not, between adjacent *exit passageways*.

> ~~**Exception:** Membrane penetrations shall be permitted on the outside of the exit passageway. Such penetrations shall be protected in accordance with Section 714.3.2.~~

Commenter's Reason: This public comment is to limit the membrane penetrations to those listed in the reason statement from the committee while preventing other hazards (Gas Piping, Hazardous Materials, Medical Gas, etc.) from being introduced into the exit enclosure. The item regarding FS49 in the reason statement is not directly relevant as this proposal is focused on the protection of exit enclosures and egress, which should be held to a higher standard than a typical shaft.

Staff note: Public comments to FS49-15 and E113-15 include text pertaining to membrane penetration for the walls around shafts. Depending on the resolution of the public comments, there is a concern for possible conflicts between these sections.

Public Comment 3:

Proponent : William Koffel, representing Firestop Contractors International Association requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

1023.5 Penetrations. Penetrations into or through *interior exit stairways* and *ramps* are prohibited except for equipment and ductwork necessary for independent ventilation or pressurization, *fire protection systems*, security systems, two-way communication systems, electrical raceway for fire department communication systems and electrical raceway serving the *interior exit stairway* and *ramp* and terminating at a steel box not exceeding 16 square inches (0.010 m^2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communication openings, whether protected or not, between adjacent *interior exit stairways* and *ramps*.

> **Exception:** Membrane penetrations shall be permitted on the outside of the interior exit stairway and ramp. Such penetrations shall be protected in accordance with Section 714.3.2.

1024.6 Penetrations. Penetrations into or through an *exit passageway* are prohibited except for equipment and ductwork necessary for independent pressurization, *fire protection systems*, security systems, two-way communication systems, electrical raceway for fire department communication and electrical raceway serving the *exit passageway* and terminating at a steel box not exceeding 16 square inches (0.010 m^2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communicating openings, whether protected or not,

between adjacent *exit passageways*.

> **Exception:** Membrane penetrations shall be permitted on the outside of the exit passageway. Such penetrations shall be protected in accordance with Section 714.3.2.

Commenter's Reason: The purpose of the Public Comment is to simply combine the Committee Action on E 112-15 (Approval As Submitted) with the Committee Action on E 113-15

E113-15

E115-15

1023.12 (New), 1024.8 (New), 1026.5 (New); (IFC[BE] 1023.12 (New), 1024.8 (New), 1026.5 (New))

Proposed Change as Submitted

Proponent : Lee Kranz, City of Bellevue, WA, representing Washington Association of Building Officials Technical Code Development Committee

2015 International Building Code

Add new text as follows:

1023.12 Standpipes. Standpipes and standpipe hose connections shall be provided in accordance with Sections 905.3 and 905.4.

1024.8 Standpipes. Standpipes and standpipe hose connections shall be provided in accordance with Sections 905.3 and 905.4.

1026.5 Standpipes. Standpipes and standpipe hose connections shall be provided in accordance with Sections 905.3 and 905.4.

Reason: Placing references to Sections 905.3 and 905.4 standpipe requirements for interior exit stairways & ramps (Section 1023), exit passageways (Section 1024) and horizontal exits (Secion 1026) will help designers and reviewers to include this requirement early in the building design process. During the means of egress design process, the requirement for standpipes for interior exit stairways/ramps, exit passageways and horizontal exits are frequently overlooked and may have significant cost impacts to correct later during construction. Including the standpipe references will make the design team aware of the requirement early in the design process and help insure cost impacts are considered at the appropriate time.

Cost Impact: Will not increase the cost of construction
This code change will save money by providing a reminder to designers and plan reviewers to check for the need for standpipes when the design includes interior exit stairways or ramps, exit passageways and horizontal exits.

E115-15 : 1023.12 (New)-KRANZ3768

Public Hearing Results

Committee Action: Disapproved

Committee Reason: These references could be read as a requirement for standpipes rather than just a pointer. This would be a problem for shorter buildings. This cross reference form Chapter 10 to Chapter 9 are unnecessary.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Lee Kranz, City of Bellevue, representing Self (lkranz@bellevuewa.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1023.12 Standpipes. Standpipes and standpipe hose connections shall be provided ~~in accordance with~~ where required by Sections 905.3 and 905.4.

1024.8 Standpipes. Standpipes and standpipe hose connections shall be provided ~~in accordance with~~ where required by Sections 905.3 and 905.4.

1026.5 Standpipes. Standpipes and standpipe hose connections shall be provided ~~in accordance with~~ where required by Sections 905.3 and 905.4.

Commenter's Reason: This code change provides a reference to remind reviewers to go check Sections 905.3 and 905.4 to see if standpipes are required for interior exit stairs and ramps, exit passageways and horizontal exits. One concern expressed by the Egress Committee was that these references could be construed as requirements rather than pointers. We have changed the text to address this issue in this public comment.

E115-15

E122-15

1025.4; (IFC[BE] 1025.4)

Proposed Change as Submitted

Proponent : Manny Muniz, representing self (Mannymuniz.mm@gmail.com)

2015 International Building Code

Revise as follows:

1025.4 Self-luminous and photoluminescent. Luminous egress path markings shall be permitted to be made of any material, including paint, provided that an electrical charge is not required to maintain the required luminance. Such materials shall include, but not be limited to, *self-luminous* materials and *photoluminescent* materials. Materials shall ~~comply~~ be listed in accordance with either of the following standards:

1. UL 1994.
2. ASTM E 2072, except that the charging source shall be 1 footcandle (11 lux) of fluorescent illumination for 60 minutes, and the minimum luminance shall be 30 milicandelas per square meter at 10 minutes and 5 milicandelas per square meter after 90 minutes.

Reason: Section 1025.4 only requires that materials comply with UL 1994 or ASTM E 2072, not that they actually be listed. When materials are only tested (no listing) for compliance with a test standard, the test samples can be submitted directly to the test agency by the manufacturer with no follow up Quality Control inspections, thus making it unclear as to what was actually tested and what is being manufactured and sold.
By contrast, materials that are tested and listed must be randomly selected by the testing lab to insure the integrity of the test results and requires follow up Quality Control inspections to insure that what is manufactured and sold is what was originally tested.

Underwriters Laboratory confirmed that "As you've noted, a test certificate can be issued without any subsequent product surveillance, leaving open the question of whether the installed product actually matches the tested product. For many products, an AHJ really has few tools to validate this. Listing programs are not foolproof but they do provide a pretty significant upgrade in confidence that someone other than a fox is watching the hen house."

Cost Impact: Will not increase the cost of construction
Regardless of whether an item is listed or not, the cost of the test is the same.

E122-15 : 1025.4-MUNIZ5601

Public Hearing Results

Committee Action: Disapproved

Committee Reason: ASTM does not list products, so the term 'listed' is not appropriate for the ASTM standard. UL does list products.

Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Manny Muniz, representing Self (Mannymuniz.mm@gmail.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1025.4 Self-luminous and photoluminescent. Luminous egress path markings shall be permitted to be made of any material, including paint, provided that an electrical charge is not required to maintain the required luminance. Such materials shall include, but not be limited to, *self-luminous* materials and *photoluminescent* materials. Materials shall ~~be listed in accordance~~ comply with either of the following standards:

1. Listed in accordance with UL 1994.
2. Tested in accordance with ASTM E 2072, except that the charging source shall be 1 footcandle (11 lux) of fluorescent illumination for 60 minutes, and the minimum luminance shall be 30 milicandelas per square meter at 10 minutes and 5 milicandelas per square meter after 90 minutes.

Commenter's Reason: The public comment addresses the committee reason for disapproval that "*ASTM does not list products, so the term 'listed' is not appropriate for the ASTM standard. UL does list products.*" Therefore, the listing requirement is limited to UL 1994.

Bibliography: UL 1994 Luminous Egress Path Markings Systems

E122-15

E127-15

1028.1; (IFC[BE] 1028.1)

Proposed Change as Submitted

Proponent : William Koffel, Koffel Associates, Inc., representing Self (wkoffel@koffel.com)

2015 International Building Code

1028.1 General. *Exits* shall discharge directly to the exterior of the building. The *exit discharge* shall be at grade or shall provide a direct path of egress travel to grade. The *exit discharge* shall not reenter a building. The combined use of Exceptions 1 and 2 shall not exceed 50 percent of the number and minimum width or required capacity of the required exits.

Exceptions:

1. Not more than 50 percent of the number and minimum width or required capacity of *interior exit stairways* and *ramps* is permitted to egress through areas on the level of discharge provided all of the following conditions are met:
    - 1.1. Discharge of *interior exit stairways* and *ramps* shall be provided with a free and unobstructed path of travel to an exterior *exit* door and such~~*exit*~~ path of travel is readily visible and identifiable from the point of termination of the enclosure.
    - 1.2. The entire area of the *level of exit discharge* is separated from areas below by construction conforming to the *fire-resistance rating* for the enclosure.
    - 1.3. The egress path from the *interior exit stairway* and *ramp* on the *level of exit discharge* is protected throughout by an *approved automatic sprinkler system*. Portions of the *level of exit discharge* with access to the egress path shall be either equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *interior exit stairways* or *ramps*.
    - 1.4. Where a required *interior exit stairway* or *ramp* and an *exit access stairway* or *ramp* serve the same floor level and terminate at the same *level of exit discharge*, the termination of the *exit access stairway* or *ramp* and the *exit discharge* door of the *interior exit stairway* or *ramp* shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the building, whichever is less. The distance shall be measured in a straight line

between the *exit discharge* door from the *interior exit stairway* or *ramp* and the last tread of the *exit access stairway* or termination of slope of the *exit access ramp*.

2. Not more than 50 percent of the number and minimum width or required capacity of the *interior exitstairways* and *ramps* is permitted to egress through a vestibule provided all of the following conditions are met:
   - 2.1. The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* of the *interior exit stairway* or *ramp enclosure*.
   - 2.2. The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).
   - 2.3. The area is separated from the remainder of the *level of exit discharge* by a *fire partition* constructed in accordance with Section 708.
   - 2.4. The area is used only for *means of egress* and *exits* directly to the outside.

   Exception: The maximum transmitted temperature rise is not required.
3. *Horizontal exits* complying with Section 1026 shall not be required to discharge directly to the exterior of the building.

Reason: Proposal E140-07/08 revised the text of the 2006 Edition of the IBC to require that the exit be visible from the discharge of the exit enclosure instead of the path of travel being visible and identifiable. The Commentary to the 2006 Edition of the IBC had similar language regarding the exit being visible. As the original proponent of the language in this section, I challenged the Commentary language and ICC Staff acknowledged that the Commentary was in error.
The Proponent of E140-07/08 described a scenario wherein the "path winds through various areas on the level of exit discharge." It should be noted that the same path would be taken by an occupant who is on the level of exit discharge at the point the stair discharges. The path is the exit access route for that occupant. If the path is acceptable as part of the exit access from that level, why is it not also acceptable for an occupant who discharges the stair into a space that is protected with an automatic sprinkler system.

The current Code text is overly restrictive by requiring that the exterior exit door itself be readily visible from the stair discharge. The current language essentially eliminates any arrangement in which the stair would discharge into a corridor unless once one enters the corridor they can immediately see the exterior door from that point. The key performance is that the occupant can effectively identify the path of travel to be taken upon arrival at the level of exit discharge.

The Proponent of E140-07/08 cited no incidents in with the existing Code text at the time presented any problems in effectively egressing from the building despite that text existing in previous codes for decades.

Cost Impact: Will not increase the cost of construction
By providing additional flexibility, the proposal will result in a reduction in the cost of construction for projects attempting to utilze the provisions.

E127-15 : 1028.1-KOFFEL5004

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: While there were concerns raised over the travel distance to the exterior exit door with this change, the current text does not have a travel distance limit. The more important aspect is that the path to that exterior exit door must be obvious. Seeing the physical door itself is not the important component.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Lee Kranz, representing The City of Bellevue Washington (lkranz@bellevuewa.gov) requests Disapprove.

Commenter's Reason: This code change adds an element of risk to the means of egress system. Currently, not more than 50% of the interior exit stairways may terminate in areas on the level of exit discharge as long as the exteior exit door is visable from the point of termination of the enclosure. This concept was first introduced into the 2009 IBC and has worked well for large commercial projects since then. Once occupants using the interior exit stair reach the level of exit discharge, it is important to have a direct line of site to the exterior exit door to maintain a free and unobstructed path of travel to the exit. As proposed, the level of exit protection could be significantly reduced because the interior exit stairway door at the level of exit discharge could terminate anywhere in the "exit access". This means occupants may be forced to egress through a maze of interviening rooms or long winding corridors. The awareness provided by being able to see the exterior exit door from the stair enclosure, as currently required in the code, improves the occupants chances of survival in a potentially dangerous fire event. Section 1022.1 says that once a given level of exit protection is achieved, such level of protection shall not be reduced until arrival at the exit discharge. This code change violates this concept, is potentially dangerous and should not be approved.

Public Comment 2:

Proponent : Maureen Traxler, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov) requests Disapprove.

Commenter's Reason: We're not completely opposed to some relaxation in the requirement that the exit be visible, but this proposal places no restraints on the distance or complexity of the exit path. It allows an unlimited distance of travel through an unprotected area. The comment makes the section vague and difficult to enforce. It's much easier to determine whether an exit is visible and readily identifiable, but "path of travel" is itself a vague term.

E127-15

E128-15

403.5.1, 1028.1, 1028.2; (IFC[BE] 1028.1, 1028.2)

Proposed Change as Submitted

Proponent : Ali Fattah, City of San Diego Development Services Department, representing City of San Diego

2015 International Building Code

Revise as follows:

1028.1 General. *Exits* shall discharge directly to the exterior of the building. The *exit discharge* shall be at grade or shall provide a direct path of egress travel to grade. The *exit discharge* shall not reenter a building. The combined use of Exceptions 1 and 2 shall not exceed 50 percent of the number and minimum width or required capacity of the required exits.

Exceptions:

1. Not more than 50 percent of the number and minimum width or required capacity of *interior exit stairways* and *ramps* is permitted to egress through areas on the level of discharge provided all of the following conditions are met:
    - 1.1. Discharge of *interior exit stairways* and *ramps* shall be provided with a free and unobstructed path of travel to an exterior *exit* door and such *exit* is readily visible and identifiable from the point of termination of the enclosure.
    - 1.2. The entire area of the *level of exit discharge* is separated from areas below by construction conforming to the *fire-resistance rating* for the enclosure.
    - 1.3. The egress path from the *interior exit stairway* and *ramp* on the *level of exit discharge* is protected throughout by an *approved automatic sprinkler system*. Portions of the *level of exit discharge* with access to the egress path shall be either equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *interior exit stairways* or *ramps*.
    - 1.4. Where a required *interior exit stairway* or *ramp* and an *exit access stairway* or *ramp* serve the same floor level and terminate at the same *level of exit discharge*, the termination of the *exit access stairway* or *ramp* and the *exit discharge* door of the *interior exit stairway* or *ramp* shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the building, whichever is less. The

distance shall be measured in a straight line between the *exit discharge* door from the *interior exit stairway* or *ramp* and the last tread of the *exit access stairway* or termination of slope of the *exit access ramp*.

1.5. Where two or more required interior exit stairways or ramps provide means of egress from the same story and discharge through the same story at the level of exit discharge, the exit discharge doors from such interior exit stairways or ramps shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the building, whichever is less. The distance shall be measured in a straight line between the exit doorways from such interior exit stairway or ramp.

2. Not more than 50 percent of the number and minimum width or required capacity of the *interior exitstairways* and *ramps* is permitted to egress through a vestibule provided all of the following conditions are met:

2.1. The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* of the *interior exit stairway* or *ramp enclosure*.

2.2. The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).

2.3. The area is separated from the remainder of the *level of exit discharge* by a *fire partition* constructed in accordance with Section 708.

2.4. The area is used only for *means of egress* and *exits* directly to the outside.

Exception: The maximum transmitted temperature rise is not required.

3. *Horizontal exits* complying with Section 1026 shall not be required to discharge directly to the exterior of the building.

1028.2 Exit discharge width or capacity and seperation. The minimum width or required capacity of the *exit discharge* shall be not less than the minimum width or required capacity of the *exits* being served. Where more than one exit is required, the path of travel for the exit discharge shall be arranged to comply with the required separation determined in Section 1007.

403.5.1 Remoteness of interior exit stairways. Required *interior exit stairways* shall be separated by a distance not less than 30 feet (9144 mm) or not less than one-fourth of the length of the maximum overall diagonal dimension of the building or area to be served, whichever is less. The distance shall be measured in a straight line between the nearest points of the enclosure surrounding the *interior exit stairways*. In buildings with three or more *interior exit stairways,* no fewer than two of the *interior exit stairways* shall comply with this section. Interlocking or *scissor stairways* shall be counted as one *interior exit stairway.*Where two or more *interior exit*

stairways egress through interior areas on the level of exit discharge, the required separation for the exit discharge shall be in accordance with Section 1028.

Reason: Code change # E7-12/13 submitted by the ICC Code Technology Committee added exception # 1.4 to Section 1027.1 Exception 1 (now 1028.1 Exception 1)
The reason statement of the code change on page E-58 of the code change monograph states " 1027.1 exception #1.4-This limitation is proposed to prevent an exit access stair and separate exit stair, which begin on the same floor, from termination to close together on the exit discharge floor. This is proposed so that one localized fire event on the exit discharge floor will not take out the termination of both means of egress components when an exit stair is permitted to discharge into the building. The 30 feet or ¼ diagonal separation distances were based on the 30 feet or ¼ diagonal that is specified for separation of interior stairways in high-rise section 403.5.1."

The ICC Code Technology Committee code change does not address maintaining separation of exits when Section 1028.1 Exception 1 permits more than one interior exit stairway to discharge through areas of the story on the level of exit discharge. Condition 1.5 is added to exception # 1 to be consistent with the code's intent that unprotected paths be separated, this condition ensures that the doorways are adequately separated to prevent both from being compromised, this condition may occur in public assembly buildings where 4 or more exits are required or large buildings where travel distance needs to be limited with exits. Egress elements can be compromised by more than fire, they can be compromised by falling debris, fire fighting operations, etc..

Section 1028.2 is modified to address separation of the means of in the exit discharge. The exit discharge includes elevated courts on podium style buildings with multiple buildings atop of a large base, exit courts, and while not called exit discharge ground floor lobbies through which interior exit stairways pas to reach the public way or exterior exit discharge. While the IBC does not consider multiple fire scenarios egress paths that converge when exterior exit doorways from an exit passageway or exit enclosure terminate adjacent to an exterior exit doorway. The means of egress requirements in Chapter 10 of the IBC have their origins in the NFPA 101 life safety. Section 7.7.3.1 of the 2015 Life Safety Code requires that means of egress in the exit discharge be separated. Without the proposed change to Section 1028.2 the IBC will continue to allow converging paths for example when a rear exit discharges to a rear yard that accesses a public way on a side opposite the court via a perpendicular exit court and the path converges with the front exit from a building when arriving at the public way. Another example is where multiple stairways terminate at a ground floor and are served by one group of lobby doors.

Section 1028.2 currently only requires the width be maintained and exterior exit discharge elements are required to be protected from a building and in some cases from adjacent lot lines. It can be assumed that the IBC does not believe that the exit discharge is as safe as the public way, whether it be within the ground floor lobby of a high rise building or the 6 ft wide exit court serving 300 occupants from an auditorium or theater. The Life Safety Code recognizes this omission and addresses exit separation do to the hazards that exist in the exit discharge.

Cost Impact: Will not increase the cost of construction
This code change may increase the cost of construction of narrow sites by limiting the size and intensity of the development to require only 1 exit or to reduce the footprint of a building. this code change is necessary to improve public safety.

E128-15 : 1028.1-FATTAH4700

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The language is confusing. The proposal could be read require separation of the exit doors at the ground level as well as the paths for exit discharge. This would be an issue for buildings blocked in on three sides that need to use exit passageways to bring occupants to the front of the building. Separation of the exit discharge will be an issue with buildings that use side courts or alleys to get around to the front of the building to exit the site.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1028.4 **Exit seperation** At the level of exit discharge, exterior exit doors shall be separated in accordance with Section 1007.

Commenter's Reason: This public comment is submitted to simplify the proposed code change and floor modification heard at the committee action hearings. The floor modification failed by a vote of 5-8 so it was an indication that the committee was receptive to the concept of the code change. The proposal as shown in this public comment has been simplified to require that exit doors entering the exit discharge be separated regardless of whether the exit discharge is through an interior space on the ground floor or at the exterior of the building. The remoteness requirement is generally satisfied by placement of the vertical shaft enclosure protecting interior exit stairways in high rise buildings so it is not necessary to address remoteness at the termination. Both the requirements of Section 403.5.1 and Section 1007 need to be satisfied.
Again as was pointed out in the original reason statement of the code change NFPA 101, the source document for many of the means of egress concepts in the IBC, was changed to require separation in the exit discharge.

E128-15

E133-15

1029.6.2; (IFC[BE] 1029.6.2)

Proposed Change as Submitted

Proponent : Daniel Nichols, representing New York State Division of Building Standards and Codes (dnichols@dos.state.ny.us)

2015 International Building Code

Revise as follows:

1029.6.2 Smoke-protected assembly seating. The required capacity in inches (mm) of the aisle for *smoke-protected assembly seating* shall be not less than the occupant load served by the egress element multiplied by the appropriate factor in Table 1029.6.2. The total number of seats specified shall be those within the space exposed to the same smoke-protected environment. Interpolation is permitted between the specific values shown. ~~A life safety evaluation, complying with NFPA 101, shall be done for a facility utilizing the reduced width requirements of Table 1029.6.2 for *smoke-protected assembly seating*.~~

> **Exception:** For outdoor *smoke-protected assembly seating* with an *occupant load* not greater than 18,000, the required capacity in inches (mm) shall be determined using the factors in Section 1029.6.3.

Reason: The requirements for smoke-protected assembly seating currently require a life safety evaluation by NFPA 101. These requirements have been updated in 2015 edition of NFPA 101; with further modification under NFPA TIA 101-15-3.
This proposal request the elimination of the life safety evaluation for several reasons:

Section 12.4.1.1 is the general requirements for the life safety evaluation. Item #3 requires an annual filing and approval by the AHJ. This is not appropriate within the construction requirements of the IBC.
Section 12.4.1.2 is a list of conditions for assessment; including the need to assess conditions related to earthquakes, hazardous materials within and near the facility, medical emergencies, hazarous materials, and relationships between various facility stakeholders. Whereas these are important items to overall occupant safety, there is little or no correlation between them and an allowance to utilize the narrower dimensions of aisles in assembly seating as regulated in IBC Section 1029.6.2
Section 12.4.1.3.1 requires the design team to provide all building systems documentation to the AHJ prior to the issuance of a building permit, per Section 12.4.1.4. This sounds like a good idea, but the requirements of 12.4.1.4 requires the submission of items including specific event floor plans (including exhibits), smoke control design documentation that is in conflict with the smoke control provisions of IBC Section 1029.6.2.1, and a loading diagram for the stage gridiron. Several items are either in conflict of the requirements of IBC 1029.6.2 or are not relevant to asembly seating design.
Section 12.4.1.3.2 requires a facility management plan per 12.4.1.5 (labeled in the section as a life safety management document). There are several items within the list that have no bearing on assembly seating aisle widths; such as contact information for venue personnel, first aid treatment plans, food safety plans, and terrorism operating protocols.

It is very clear that the update to NFPA 101 is comprehensive. However, it does cover hazards outside of fire and life safety provided in the purpose and scope of the IBC and has little bearing on the diminishment of assembly seating aisles. In short, the

information within the life safety evaluation does not provide any additional requirements to the actual measurement of the aisle widths for smoke protected seating.

Finally, the International Fire Code is the appropriate place for emergency plans. Chapter 4 makes an emergency plan enforceable during the use of smoke protected assembly seating; not just during the filing of a building permit. IFC Chapter 4 is very comprehensive and requires these plans for all assembly occupancies and public gatherings.

Bibliography: NFPA 101- 2015 edition Section 12.4.1 (as modified by NFPA 101 TIA 15-3)

Cost Impact: Will not increase the cost of construction
This proposal is to remove requirements related to emergency plan filing prior to the issuance of a building permit

E133-15 : 1029.6.2-NICHOLS5757

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The evaluation for smoke protected seating addresses threats other than fire; hurricanes, storms, bomb threats. It is a detailed analysis that considers crowd movements. It separates owner and designer requirements. While a final evaluation cannot be completed until the owner hires his building managers, this is an important safety consideration that is not matched in the code requirements, therefore the reference should remain.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Daniel Nichols, representing New York State Dept. of State (dnichols@dos.state.ny.us) requests Approve as Submitted.

Commenter's Reason: In response to the committee's reason, there is little connection between the width calculations of aisles and a life safety evaluation to determine the hazards associated with events like hurricanes, storms, and bomb threats. Since the only physical modification to the building for smoke-protected seating is the design of a smoke management system, the only parameter that is in the IBC to affect the aisle width is the building's ability to provide a greater degree of tenability of the occupants. If there is a concern that the aisle widths are inappropriate for these other non-fire events, then it may be appropriate to delete the allowance for diminished widths permitted under the smoke protected seating provisions.
I reference back to the original proposal's reason statement that lists several items that are either contradictory or not applicable to the means of egress of a smoke-protected assembly occupancy.

If there is a desire to provide greater detail in emergency action planning for non-fire events in large occupancy assembly uses, then those requirements should be in the IFC and should be aligned with the construction requirements of the I-Codes. The exposure for these hazards should be based on the population and use of the

building, not the width of the aisles.

E133-15

E144-15

Table 1006.3.2(2), 1030.1; (IFC[BE] Table 1006.3.2(2), 1030.1)

Proposed Change as Submitted

Proponent : Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Revise as follows:

1030.1 General. In addition to the *means of egress* required by this chapter, provisions shall be made for *emergency escape and rescue openings* in Group ~~R-2 occupancies in accordance with Tables 1006.3.2(1) and 1006.3.2(2) and Group R-3~~ R occupancies. *Basements* and sleeping rooms below the fourth story above *grade plane* shall have at least one exterior *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, *emergency escape and rescue openings* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way*.

Exceptions:

1. *Groups R-1 and R-2 occupancies are not required to provide emergency and escape openings where they comply with all of the following:*
   - 1.1. *Each story has access to two or more means of egress.*
   - 1.2. *The building is constructed of Type I, Type II, Type IIIA or Type IV construction.*
   - 1.3. *The building is equipped throughout with an approved automatic sprinkler system in accordance with Sections 903.3.1.1 or 903.3.3.2.*
2. *The emergency escape and rescue opening is permitted to open onto a balcony within an atrium in accordance with the requirements of Section 404, provided the balcony provides access to an exit and the dwelling unit or sleeping unit has a means of egress that is not open to the atrium.*
3. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
4. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior exit balcony that opens to a *public way*.
5. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.

TABLE ~~1006.3.2~~ 1006.3.2(2)

STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)
First story above or below grade plane	A, B[b] , E F[b] , M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1[a], R-2[a,c] , R-4	10	75
	S[b,d]	29	75
Second story above grade plane	B, F, M, S[d]	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as ~~Group~~ Groups R-1 and R-2 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with *emergency escape and rescue openings* in accordance with Section 1030.

b. Group B, F and S occupancies in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 shall have a maximum *exit access* travel distance of 100 feet.

c. This table is used for R-2 occupancies consisting of *sleeping units*. For R-2 occupancies consisting of *dwelling units*, use Table 1006.3.2(1).

d. The length of *exit access* travel distance in a Group S-2 *open parking garage* shall be not more than 100 feet

Reason: The intent is to at require emergency escape and rescue openings in all Group R occupanies. Exception 1 will exempt Group R-1 and R-2 occupancies except for Type IIIB and Type V construction and Group R-1 and R-2 with one exit. Exception 2 was found in the 2009 IBC. This could be used by a hotel with balconies that open into an atrium with smoke protection rather than balconies that open to the outside. Group R-3 and Group R-4 would still be required to have emergency escape and window openings. That would not change.
The change to add emergency escape windows for Group R-1 in Table 1006.3.2(2) for single exit buildings is correllative.

Cost Impact: Will increase the cost of construction
This would be an increase for Group R-1 and R-2 buildings of Type IIIB and V construction.

E144-15 : 1030.1-CUEVAS4873

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There was not technical justification provided to require emergency escape windows in all Group R-1 and R-2 facilities. The past text referenced in the reason included an exception for sprinklered buildings. All Group R-1 and R-2 building are now required to be sprinklered, so the current code matches past codes. There was no technical reason for the limits of the construction types.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1030.1 General. In addition to the *means of egress* required by this chapter, ~~provisions shall be made for~~ *emergency escape and rescue openings*shall be provided in the following occupancies:

1. Group ~~R~~ R-1 and R-2 occupancies.
2. Group R-1 and R-2 occupancies located on stories with one exit or access to one exit where permitted by Tables 1006.3.2(1) and 1006.3.2(2).
3. Group R-3 occupancies.

Basements and sleeping rooms below the fourth story above *grade plane* shall have at least one exterior *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, *emergency escape and rescue openings* shall be required in each sleeping room, but shall not be required in adjoining areas of the

basement. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way*.

Exceptions:

~~*1. Groups R-1 and R-2 occupancies are not required to provide emergency and escape openings where they comply with all of the following:*~~

~~*1.1 Each story has access to two or more means of egress.*~~

~~*1.2 The building is constructed of Type I, Type II, Type IIIA or Type IV construction.*~~

~~*1.3 The building is equipped throughout with an approved automatic sprinkler system in accordance with Sections 903.3.1.1 or 903.3.3.2.2.*~~

~~*2. The emergency escape and rescue opening is permitted to open onto a balcony within an atrium in accordance with the requirements of Section 404, provided the balcony provides access to an exit and the dwelling unit or sleeping unit has a means of egress that is not open to the atrium.*~~

1. Emergency escape an rescue openings are not required from Grooup R-1 and R-2 occupancies where each story has access to at least two exits or access to exits and the building is equipped throughouth with an automatic spinkler system in accordance with Section 903.3.1.1.

2. Basements with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.

3. Emergency escape and rescue openings are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior exit balcony that opens to a *public way*.

4. Basements without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.

Commenter's Reason: We request that the proposed amendment be approved as modified by our public comment.

The building code since the late 1970's has always required exterior openings such as windows and doors to serve as emergency escape openings and as emergency rescue openings. Dimensional constraints for the opening, location constraints and requirements for how to access and leave the opening on the exterior of the building are also included. The code has exempted exterior openings in sleeping rooms located above the fourth story from compliance presumably because the buildings were protected with an automatic sprinkler system designed per Section 903.3.1.1 (NFPA 13 sprinkler system). Additionally ladder access is more difficult so that is possibly another reason.

During the drafting of the 2000 IBC first draft the code included exceptions to Section 1013.1 and Exception # 1 permits non-compliance with the requirements for emergency escape and rescue openings if the building is protected with a sprinkler system per NFPA 13R or NFPA 13. This appears to be a reasonable trade off since it allows occupants time to escape through the main entry door to the dwelling unit of sleeping unit and it allows time for rescue personnel to enter the building and perform search and rescue operations. The sprinkler system also provides the benefit of occupant notification beyond the area of origin and for the initiation of fire department response through a monitoring station.

The LA Basin chapter proposed to codify an amendment presently published in the supplement to the 2013 California Building Code and the proposed code change includes the addition of exception 1 that requires both an NFPA 13 sprinkler system and fire resistance rated construction when non-compliance with the emergency escape and rescue openings is desired.

The required fire resistance in exception 1 of the original proposal is not necessary since dwelling units need to be separated from one another with one hour floors and one-hour fire resistance rated fire partitions. Interior exit stairways will be protected with one or two hour fire resistance rated fire barriers. Exterior walls need to be fire resistance rated when located less than 10 ft fire separation distance. Most of the R-1 and R-2 occupancies end up being at least one hour or better as a result.

It has been our experience that the exception is used when the opening opens into an interior court or where the court does not lead directly to the public way. The majority of sleeping rooms in new construction are constructed with windows that comply with or exceed the opening requirements in the code. Additionally, opening dimensions might be non-compliant due to odd shaped windows. Fire fighting rescue is generally performed from within the building by accessing upper stories through interior exit stairways. Rescues from exterior openings occur if occupants cannot get to the exterior door of their unit or if the corridor is for some reason compromised. The NFPA 13 sprinkler system allows occupants in the building to be notified and provides protection to allow for improved evacuation time.

Limiting the omission of emergency and rescue openings to buildings protected with an NFPA 13 sprinkler system address a concern about fires originating in combustible concealed spaces and traveling within the building cavity beyond the area of origin as occurred at the recent fire at "The Avalon at Edgewater" in the city of Edgewater in New Jersey. The building was protected with an NFPA 13R system and was completely destroyed almost due to a variety factors that included delayed notification, and as I was informed limited fire fighting operations. Notification was initiated when the fire in the combustible concealed space reached non-metallic sprinkler piping in the attic. While no fatalities occurred the incident illustrates what can occur when a fire burns through a fire resistance rated combustible multi-story building.

Occupants asleep would not be notified until water flow occurs, in this case the failure of the sprinkler piping. Fire could be traveling overhead in the floor or roof ceiling space. While Section 718.3.2 exception # 2 and Section 718.4.2 exception # 4 allow omission of draft stops when sprinklers are provided in the floor or roof ceiling space, the fire in New Jersey demonstrated that passive protection to not have been effective since the building was presumably constructed with draft stops that may have been compromised.

The emergency rescue opening is important if the occupant is located in the unit of origin or if the main common exits paths such as corridors, exterior exit balconies or interior/exterior exit stairways or enclosed exit access stairways are compromised. Hardwired and interconnected smoke alarms give early warning during the beginning phases of fire in the unit and NFPA 13 sprinkler protection is designed to limit fire growth to allow time to egress through the front door. The NFPA 13 sprinkler system ensures that protection is provided in the combustible concealed space which improves fire fighting response.

Section 406.3 of the IEBC addresses emergency escape and rescue openings in existing buildings. Section 403.1 of the IEBC addresses alterations and would require that the windows comply with the requirements for new buildings.

As proposed the public comment is coordinated with code change E-141 that was approved. Exception 1 allows the trade off to R-1 and R-2 occupancies since Table 1006.3.2 (2) only exempts 1 story R-1 occupancies and it is reasonable that if an R-1 occupancy is provided with two exits and an NFPA 13 sprinkler system that it should be treated similar to an R-2 since the transient nature of the occupancy should not

have bearing on application of the exception. The revision to Section 1030.1 includes a further clarifying what was approved in E141 to make clear the applicability of emergency escape and rescue requirements to Group R-1, R-2, R-3. Exception # 1 only applies to Group R-1 and R-2.

E144-15

E145-15

1030.1; (IFC[BE] 1030.1)

Proposed Change as Submitted

Proponent : Jeffrey Shapiro, International Code Consultants, representing International Code Consultants

2015 International Building Code

Revise as follows:

1030.1 General. In addition to the *means of egress* required by this chapter, provisions shall be made for *emergency escape and rescue openings* in Group R-2 occupancies in accordance with Tables 1006.3.2(1) and 1006.3.2(2) and Group R-3 occupancies. *Basements* and sleeping rooms below the fourth story above *grade plane* shall have at least one exterior *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, *emergency escape and rescue openings* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way*.

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior exit balcony that opens to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. Within individual dwelling and sleeping units in Groups R-2 and R-3, where the buildings is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, sleeping rooms in basements shall not be required to have *emergency escape and rescue openings* provided that the basement has one of the following:
    - 4.1. One means of egress and one *emergency escape and rescue opening*
    - 4.2. Two means of egress.

Reason: This Section has very limited application, only applying to Group R-3 and a small number of Group R-2 occupancies that have only one exit per story. It does not apply to Group R-1 or any Group I occupancy, all of which are permitted to have sleeping rooms in basements and stories of sprinklered buildings, even those with a single exit per Tables 1006.3.2(1) and 1006.3.2(2). The reason for not applying a similar allowance to Group R-3 and single exit Group R-2 is not evident considering that other occupancies pose a more significant life-safety risk.

Nevertheless, rather than seeking full equivalency with these other occupancies when sprinklers are provided, this proposal seeks only a partial credit for basements, with the hope of finding common ground with parties who have previously argued against a general exception for means of escape in fully sprinklered buildings. This proposal maintains at least one basement escape window or door or an additional means of egress in addition to the primary means of egress. Plus, it is important to remember that both sprinklers and hard-wired interconnected smoke alarms are required to qualify for the proposed exception.

This combination of sprinklers and smoke alarms is well established by the NFPA 101 - Life Safety Code as a basis for eliminating all required means of escape openings from sprinklered one- and two-family dwellings, hotels, motels, apartments and similar uses. In addition, the states of New Hampshire and Virginia have amended their statewide code adoptions by eliminating all requirement for means of escape openings when sprinklers are provided. Minnesota adopted a similar amendment, but the allowance was limited to exempting all basement escape windows (these were IRC amendments, but the logic conveys to the IBC discussion).

There are many reasons for adding this exception to the IBC. First, 16 states have legislatively preempted adoption of residential sprinkler requirements for one- and two-family dwellings, and in some cases, townhouses. Recognizing that some homes and townhouses may be built under the IBC (perhaps where IRC height limits are exceeded or where the IRC isn't adopted), it is important to provide code incentives to strongly encourage the installation of sprinkler systems. It is also fair to offer these incentives to builders and homebuyers in other states. Second, passing this exception in the IBC will remove the question of IBC-IRC correlation as a basis for arguing against a similar change that will be proposed to the IRC in the Group B code cycle. Third, there is less benefit to a basement means of escape because the dynamics of a basement fire differ from fires above grade. In a non-sprinklered fire event, it might be possible for an occupant to be rescued or escape using an above-grade window because the lower portion of the window may initially draw fresh air. However, a basement window well will quickly fill with smoke and heated gases if there's an uncontrolled fire in the basement, and the importance of fire sprinklers in providing extra egress time cannot be overstated. Likewise, by the time firefighters arrive, rescuing an occupant from a developed basement fire through a means of escape window or using such window as an escape route for a firefighter seems highly unlikely. Firefighter safety is far better assured by sprinklers.

Looking at the value of this incentive, the cost savings associated with eliminating even one basement escape window and the associated ladder and window well is significant. Combine that with the benefit of eliminating leakage and maintenance issues and tripping/fall hazards that may be associated with window wells, and the incentive grows. Finally, recognize the enormous benefit that this change will offer for homebuyers, who will gain the option of finishing a rough-in basement without the contsraint of laying out sleeping rooms based on existing window locations or having to add windows to an existing basement. This single incentive might be valuable enough to encourage voluntary sprinkler installations, and still, the level of safety will exceed what is required by the IBC for similar occupancies and by NFPA 101.

Cost Impact: Will not increase the cost of construction
The proposal adds an option to the code. There is no requirement to utilize this option; however, if it is used, the cost of construction may decrease.

E145-15 : 1030.1-SHAPIRO5526

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: This allowance would encourage people to voluntarily put in a residential sprinkler system. This proposal provides flexibility for the location of the bedrooms in the basement to not be directly attached to the emergency escape and rescue opening. Having a sprinkler system in a single family home does seem a reasonable trade off for the orientation/location of the emergency escape and rescue openings. There still needs to be two ways out of the basement.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Disapprove.

Commenter's Reason: Another sprinkler trade off. We have seen time and time where fire races through un-protected and concealed areas. LIfe safety trade offs for NPFA 13R systems are not justified.

Public Comment 2:

Proponent : Jeff Inks, representing Window and Door Manufacturers Association (jinks@wdma.com) requests Disapprove.

Commenter's Reason: WDMA is opposed to this exception because it is based on the assertion that the only purpose of EERO requirements is for escape or rescue from fire. While there is no dispute the combination of compliant smoke alarms and fire sprinklers provides a very high level of safety from fire, that is not a certainty and fire is not the only purpose for emergency escape and rescue openings as is clearly stated by ICC's definition for them – "*EMERGENCY ESCAPE AND RESCUE OPENING. An operable window, door or other similar device that provides for a means of escape and access for rescue in the event of an emergency.*" Fire is not the only emergency that may be experienced by occupants of dwelling and sleeping units where these openings may be needed to provide for escape and rescue of those occupants.
While the application of the proposed exception may be limited, it nonetheless is a compromise in life safety for those applications -- it simply compromises the broader EERO life safety provisions to incentivize the installation of sprinklers to reduce the life safety risk of only one type of emergency. Is one means of egress and one emergency escape and rescue opening or two means of egress adequate for any number of sleeping rooms in basements of Group R-2 and R-3 occupancies for all emergencies, in addition to fire, that may occur? WDMA firmly believes such limited emergency escape and rescue provisions are not.

WDMA strongly urges the disapproval of this proposal.

Public Comment 3:

Proponent : Julie Ruth, representing American Architectural Manufacturers Association (julruth@aol.com) requests Disapprove.

Commenter's Reason: This proposal should be disapproved because, although equivalence to other provisions in the IBC for R-2 occupancies with regards to fire safety may be demonstrated in the Reason statement, equivalence for Group R-3 occupancies is not. Also, in some cases hazards in the basement other than fire may require emergency escape and rescue. These hazards are not likely to be successfully mitigated by a sprinkler system.

The proponent correctly argues that Emergency Escape and Rescue Openings are not required in the basements of Use Group R-1 or I occupancies. Although sleeping rooms may occur in such facilities, they are less likely to occur there than in R-2 or R-3 occupancies. Group R-1 and I occupancies are required to be sprinklered with an NFPA 13 or 13R system.

Use Group R-2 occupancies are also required to be sprinklered with an NFPA 13 or 13R system. The majority of the proponent's reason statement is devoted to the discussion that, since Group R-2 is also required to be sprinklered by an NFPA 13 or 13R system, and Emergency Escape and Rescue Openings are not required in Group R-1 and I occupancies that are provided the same level of sprinkler protection, they should not be required in Group R-2 occupancies either.

What the proponent does not address in his reason statement is the fact that the exception proposed would also apply to Group R-3 occupancies. Group R-3 may be sprinklered with an NFPA 13D system rather than a NFPA 13 or 13R system.

The level of protection provided by a NFPA 13D systen is significantly less than that of a NFRP 13 or 13R system. The differences include number and location of sprinkler heads, required water supply and reserve, equipment standards, required inspections. etc.

Other hazards that may occur in the basement that might necessitate Emergency Escape and Rescue Openings include possible build up of carbon dioxide, particularly due to fuel burning appliances in increasingly tight building envelopes, spills of toxic chemicals, need to escape a home due to domestic abuse, etc.

Although the IRC requires sprinkler systems in residential construction (Group R-3), that sprinkler system does not provide an exemption from the installation of Emergency Escape and Rescue Openings. In fact, one of the points made by the proponent of G 15 in its support is that its approval will facilitate approval of simlar provisions in the IRC next cycle. Removing the requirement for Emergency Escape and Rescue Openings in Use Group R-3 occupancies is not appropriate. It should not be approved for the IBC to facilitate it in the IRC.

E145-15

E149-15

1103.2.4, 1106.5

Proposed Change as Submitted

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1103.2.4 Utility buildings. Group U occupancies are not required to comply with this chapter other than the following:

1. In agricultural buildings, access is required to paved work areas and areas open to the general public.
2. ~~Private~~ Group U private garages or carports that contain required *accessible* parking.

1106.5 Van spaces. For every six or fraction of six *accessible* parking spaces, at least one shall be a van-accessible parking space.

> **Exception:** In Group R-2 and R-3 occupancies, van-accessible spaces located within Group U private garages that serve Type B units shall be permitted to have vehicular routes, entrances, parking spaces and access aisles with a minimum vertical clearance of 7 feet (2134 mm).

Reason: The definitions and requirements for private garages was revised in the 2015 IBC. This proposal will coordinate Sections 1103.2.4 and 1106.3 with how the term is used in Section 406.3. This will also help clarify the original intent that these exceptions were intended for small garages, not larger garages that are for residents only. The latter interpretation would be a conflict with federal accessibility requirements.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of current requirements; therefore, there is no impact on the cost.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There were questions about if this exception should be permitted for Type A dwelling units. While the committee agreed that Group U private garages was appropriate, the committee felt that a public comment would allow for interested parties to look at this further.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1103.2.4 Utility buildings. Group U occupancies are not required to comply with this chapter other than the following:

1. In agricultural buildings, access is required to paved work areas and areas open to the general public.
2. ~~Private~~ Group U private garages or carports that contain required *accessible* parking.

Commenter's Reason: The ICC Building Code Action Committee is requesting approval of this public comment. There has been confusion with the word 'private'. Is this applicable to the Group U private garages as specified in Section 406.3 or is it applicable to a garage that is 'resident's only'. The intent of this proposal is to clarify that the exception is only to the garages as limited in Section 406.3. Applying this to a 'resident's only garage would be a conflict with FHA requirements and Section 1106.2 requirements for parking within covered parking.

Public Comment 2:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1106.5 Van spaces. For every six or fraction of six *accessible* parking spaces, at least one shall be a van-accessible parking space.

Exception: In Group U private garages that serve Type A and Type B

units in Group R-2 and R-3 occupancies, van-accessible spaces ~~located within private garages~~ shall be permitted to have vehicular routes, entrances, parking spaces and access aisles with a minimum vertical clearance of 7 feet (2134 mm).

Commenter's Reason: The ICC Building Code Action Committee requests approval of this public comment. The phrase 'In Group U private garages that serve' was approved in E154-15. This proposal is adding 'Type A and Type B units in'. To allow the lower height for van spaces for parking serving Accessible units would be a violation of ADA requirements. The lower height is reasonable for private vans that have been modified. The limit will give designers a break for single and double car garages associated with units, but not for common garages that are 'resident's only.'

E149-15

E153-15

1105.1, 1105.1.1 (New), TABLE 1105.1.1 (New)

Proposed Change as Submitted

Proponent : Joseph Hetzel, representing DASMA (Jhetzel@thomasamc.com)

2015 International Building Code

Revise as follows:

1105.1 Public entrances. In addition to *accessible* entrances required by Sections ~~1105.1.1~~ 1105.1.2 through ~~1105.1.7~~ 1105.1.8, at least 60 percent of all *public entrance*s shall be *accessible*.

Exceptions:

1. An *accessible* entrance is not required to areas not required to be *accessible*.
2. Loading and *service entrances* that are not the only entrance to a tenant space.

Add new text as follows:

1105.1.1 Automatic Doors. For buildings or facilities having occupant loads greater than or equal to that specified in Table 1105.1.1, at least one accessible public entrance shall be either a power-operated door or a low-energy power-operated door.

TABLE 1105.1.1
PUBLIC ENTRANCE WITH POWER-OPERATED DOOR

OCCUPANCY	MINIMUM OCCUPANT LOAD
I-1, I-2	50
A-1, A-2, A-3, A-4	300
R-1	300
B, E, M, R-2	500

Reason:

- The proposed language is conceptually based on code language currently in existence, and successfully used, in the province of Ontario, Canada.
- It is widely accepted that automatic doors in general enhance overall accessibility.
- The occupancies cited as requiring power-operated doors are associated with locations where either a high degree of public use would be anticipated, or a serious need exists among the population using a particular occupancy.
- The Table is needed in Section 1105, where accessible entrances are governed.

- Occupant loads have been determined as follows:
    - Groups A and I-2: From Table 1604.5, where these Groups are classified as Risk Category III described as "buildings and other structures that represent a substantial hazard to human life in the event of failure".
    - Other Groups in proposed Table 1105.1.8: From Table 1006.3.1, which states that three exits or exit access doorways shall be provided from any space with an occupant load of 501 to 1000, and four shall be provided with an occupant load greater than 1000.
- The thresholds have been chosen so as not to place a disproportional economic burden on smaller occupancies such as small assembly buildings or strip mall businesses.
- The thresholds also assume that a minimum of 0.4% of the population will be in need of accessibility at any given time for the specified occupancies. The anticipated accessibility need should exceed this estimate a large enough percentage of time to constitute a critical mass of facilities needing power-operated doors when meeting the established thresholds.
- The population requiring accessibility commonly needs accommodations to enter assembly, business, mercantile, hotel/motel, and institutional facilities as part of their everyday life.

Cost Impact: Will increase the cost of construction
The code change proposal will increase the cost of construction, which will be offset by the significant enhancement of accessibility and the side benefit of increased public convenience.

E153-15 : 1105.1-HETZEL3472

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The testimony was that power doors are already typically provided in these types of facilities, so why is there a need to require them? This is a best practice item, not a minimum code requirement. There was no technical justification for the occupant load numbers suggested.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Joseph Hetzel, representing American Association of Automatic Door Manufacturers (AAADM) (Jhetzel@thomasamc.com) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

1105.1.1 ~~Automatic~~ Power Operated Doors. For buildings or facilities having occupant loads greater than or equal to that specified in Table 1105.1.1, at least one accessible public entrance shall be either a power-operated door or a low-energy power-operated door..

TABLE 1105.1.1
PUBLIC ENTRANCE WITH POWER-OPERATED DOOR

OCCUPANCY	MINIMUM OCCUPANT LOAD
I-1, I-2	50
A-1, A-2, A-3, A-4	~~300~~301
~~R-1~~	~~300~~
B, ~~E,~~ M, R-1,~~R-2~~	~~500~~ 501

Commenter's Reason: In addition to the reasoning given with the original proposal, the following information addresses Committee comments.

- The requirement is a need, as opposed to a "best practice", because not only do automatic doors enhance accessibility but they have become a staple of access convenience in society and are known to be very highly reliable.
- Our justification of minimum occupant load uses Risk Category and minimum number of exits as starting points, since these are the only locations in the Code with occupancy thresholds to consider. Risk Category and minimum number of exits share a common concern with automatic doors because the threshold numbers represent a critical mass of people above which a unique set of code requirements need to apply. Following is an explanation of how the threshold numbers have been arrived at for each occupancy in the Table.
    - Group I: From Table 1604.5, Risk Category III which is described as "buildings and other structures that represent a substantial hazard to human life in the event of failure". I-2 is classified as "an occupant load of 50 or more resident care recipients but not having surgery or emergency treatment facilities". I-1 is comparable to I-2 from the standpoint that 50 or more occupants could be in a building or facility. I-3 is not needed in the Table for security purposes, and I-4 is not needed because the occupancy would not likely reach 50 or more.
    - Group A: Also from Table 1604.5, Risk Category III. The scope of public assemblies is an occupant load greater than 300.
    - Groups B, M and R-1: From Table 1006.3.1, minimum number of exits or access to exits per story. Table 1006.3.1 states that three exits or exit access doorways shall be provided from any space with an occupant load of 501 to 1000, and four shall be provided with an occupant load greater than 1000. The proposed Table would set a threshold of three exits or exit access doorways, in a given story with a public entrance, to require an automatic door at that public entrance. R-1 is the applicable Group R occupancy because hotels and motels should be encompassed by the Table where the threshold occupant load would be appropriate for those structures.

The modified Table directly addresses the anticipated need of the accessibility community, particularly involving the public to especially consider "transient" use. Occupancies E and R-2 have been removed from the original proposal since there may be security related aspects of entrance doors requiring special access related devices.

E153-15

E155-15

1107.5.1, 1107.5.1.1, 1107.5.1.2, 1107.6.2.2, 1107.6.2.2.1, 1107.6.2.2.2, 1107.6.2.3, 1107.6.2.3.1, 1107.6.2.3.2

Proposed Change as Submitted

Proponent : Daniel Nichols, New York State Division of Building Standards and Codes, representing New York State Division of Building Standards and Codes (dnichols@dos.state.ny.us)

2015 International Building Code

Revise as follows:

1107.5.1 Group I-1. *Accessible units* and *Type B units* shall be provided in Group I-1 occupancies in accordance with Sections 1107.5.1.1 and 1107.5.1.2.

1107.5.1.1 Accessible units. In Group I-1 Condition 1, at least 4 percent, but not less than one, of the *dwelling units* and *sleeping units* shall be *Accessible units*.In Group I-1 Condition 2, at least 10 percent, but not less than one, of the *dwelling units* and *sleeping units* shall be *Accessible units*.

1107.5.1.2 Type B units. In structures with four or more *dwelling units* or *sleeping units intended to be occupied as a residence*, every *dwelling unit* and *sleeping unit intended to be occupied as a residence* shall be a *Type B unit*and shall meet the additional following requirements.

1. Doors intended for user passage required to comply with ICC A117.1 Section 1004.5.2 shall also comply with the clear width and maneuvering clearances required by Sections 404.2.2 and 404.2.3 of ICC A117.1.
2. At least one toilet and bathing facility in the *dwelling* or *sleeping unit* shall be constructed in accordance with the toilet and bathing facilities requirements of Section 1003.11 of ICC A117.1.

~~Exception~~ Exceptions:

1. The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.
2. Maneuvering clearance is not required on the toilet room or bathroom side of the door in toilet rooms and bathrooms not required to comply with Section 1003.11 of ICC A117.1.
3. Where exterior space dimensions of balconies are less than the required manuevering clearance, door manuevering clearance is not required on the exterior side of the door.
4. Where closets or pantries are 48 inches (1220 mm) maximum in depth, the maneuvering clearance is not required on the closet side of the door.

1107.6.2.2 Apartment houses, monasteries and convents. ~~*Type A units* and~~ *Type B units* shall be provided in apartment houses, monasteries and convents in accordance with ~~Sections~~ Section 1107.6.2.2.1~~ and 1107.6.2.2.2~~.

Delete without substitution:

~~**1107.6.2.2.1 Type A units.** In Group R-2 occupancies containing more than 20 *dwelling units* or *sleeping units*, at least 2 percent but not less than one of the units shall be a *Type A unit*.All Group R-2 units on a *site* shall be considered to determine the total number of units and the required number of *Type A units*.*Type A units* shall be dispersed among the various classes of units.Bedrooms in monasteries and convents shall be counted as *sleeping units* for the purpose of determining the number of units.Where the *sleeping units* are grouped into suites, only one *sleeping unit* in each suite shall count towards the number of required *Type A units*.~~

~~**Exceptions:**~~

~~1. The number of *Type A units* is permitted to be reduced in accordance with Section 1107.7.~~
~~2. *Existing structures* on a *site* shall not contribute to the total number of units on a *site*.~~

Revise as follows:

~~**1107.6.2.2.2**~~ **1107.6.2.2.1 Type B units.** Where there are four or more *dwelling units* or *sleeping units intended to be occupied as a residence* in a single structure, every *dwelling unit* and *sleeping unitintended to be occupied as a residence* shall be a *Type B unit* and shall meet the additional following requirements.

1. Door intended for user passage required to comply with ICC A117.1 Section 1004.5.2 shall also comply with the clear width and maneuvering clearances required by Sections 404.2.2 and 404.2.3 of ICC A117.1.
2. At least one toilet and bathing facility in the dwelling or sleeping unit shall be constructed in accordance with the toilet and bathing facilities requirements of Section 1003.11 of ICC A117.1.

~~**Exception**~~ **Exceptions:**

1. The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.
2. Maneuvering clearances is not required on the toilet room or bathroom side of the door in toilet rooms and bathrooms not required to comply with Section 1003.11 of ICC A117.1.
3. Where exterior space dimensions of balconies are less than the required manuevering clearance, door manuevering clearances is not required on the exterior side of the door.
4. Where closets or pantries are 48 inches (1220 mm) maximum in depth, the maneuvering clearance is not required on the closet side of the door.

1107.6.2.3 Group R-2 other than live/work units, apartment houses, monasteries and convents. In Group R-2 occupancies, other than *live/work units*, apartment houses, monasteries and convents falling

within the scope of Sections 1107.6.2.1 and 1107.6.2.2, *Accessibleunits* and *Type B units* shall be provided in accordance with Sections 1107.6.2.3.1 and 1107.6.2.3.2. Bedrooms within congregate living facilities shall be counted as *sleeping units* for the purpose of determining the number of units. Where the *sleeping units* are grouped into suites, only one *sleeping unit* in each suite shall be permitted to count towards the number of required *Accessibleunits*.

1107.6.2.3.1 Accessible units. *Accessibledwelling units* and *sleeping unit*s shall be provided in accordance with Table 1107.6.1.1.

1107.6.2.3.2 Type B units. Where there are four or more *dwelling units* or *sleeping unit*s *intended to be occupied as a residence* in a single structure, every *dwelling unit* and every *sleeping unitintended to be occupied as a residence* shall be a *Type B unit*and shall meet the additional following requirements.

1. Door intended for user passage required to comply with ICC A117.1 Section 1004.5.2 shall also comply with the clear width and maneuvering clearances required by Sections 404.2.2 and 404.2.3 of ICC A117.1.
2. At least one toilet and bathing facility in the *dwelling* or *sleeping unit* shall be constructed in accordance with the toilet and bathing facilities requirements of Section 1003.11 of ICC A117.1.

~~Exception~~ Exceptions:

1. The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.
2. Maneuvering clearances is not required on the toilet room or bathroom side of the door in toilet rooms and bathrooms not required to comply with Section 1003.11 of ICC A117.1.
3. Where exterior space dimensions of balconies are less than the required manuevering clearance, door manuevering clearances is not required on the exterior side of the door.
4. Where closets or pantries are 48 inches (1220 mm) maximum in depth, the maneuvering clearance is not required on the closet side of the door.

Reason: The purpose of this code change proposal is to modify the level of accessibility offered in Group I-1 and R-2. The collective use of these residential occupancies is generally for occupants that are planning a long-term residency in a dwelling or sleeping unit. With that, the availability of choice is important in selecting a residential unit compared to other residential occupancies.

The language of the proposal has been utilized in New York State for the past 12 years and was developed jointly by accessibility advocates and the building industry . For Group R-2 apartments, the baseline to the proposal is that the elimination of full Type A unit requirements is offset by the expansion of certain accessibility features in the remaining units that are being designed as Type B units. The reasoning for this proposal is to offer more choice in these residential buildings to those with different types of physical disabilities and their respective mobility needs. Further,

the proposal will offer more choice of residential housing to a greater number of those with physical disabilities since the requirements for doorway widths and an accessible bathroom will start at four units, instead of 20 units that count units throughout a complex.

The proposal requires the initial design of all apartments to have doorways the width as required for a Type A unit as well as one bathroom to be of Type A design. This provides the additional choice within apartments for either initial use or adaptable changes to other building features (like cabinetry or appliance access) due to change of occupant or change of occupant's abilities.

Cost Impact: Will increase the cost of construction
The code change will increase the cost of construction since the floor area that is required for the additional Type B units is generally not offset by the ellimination of the Type A units.

E155-15 : 1107.6.2.2-NICHOLS5453

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Technical justification for the need for the New York B+ units was not provided. This would over ride the ICC A117.1 technical provisions for Type A and Type B units. This would eliminated Type A units which do provide a higher level of accessbility. This would potentially cause a conflict with the Department of Housing and Urban Development (HUD) viewing the IBC and ICC A117.1 as safe harbor documents.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Nathan Roether, representing United Spinal (nroether@accessibility-services.com) requests Approve as Submitted.

Commenter's Reason: This has worked in New York State since 1984, New Jersey since the early 70's and in New York City since the 2008 edition of the building code. An aging population requires more accessiblity. Our main goal is to increase accessibility.

E155-15

E169-15
1111.1

Proposed Change as Submitted

Proponent : Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Building Code

Revise as follows:

1111.1 Signs. Required *accessible* elements shall be identified by the International Symbol of Accessibility at the following locations.

1. *Accessible* parking spaces required by Section 1106.1.
   Exception: Where the total number of parking spaces provided is four or less, identification of *accessible* parking spaces is not required.
2. *Accessible* parking spaces required by Section 1106.2.
   Exception: In Group I-1, R-2, R-3 and R-4 facilities, where parking spaces are assigned to specific *dwelling units* or *sleeping units*, identification of *accessible* parking spaces is not required.
3. *Accessible* passenger loading zones.
4. *Accessible* rooms where multiple single-user toilet or bathing rooms are clustered at a single location.
5. *Accessible* entrances where not all entrances are *accessible*.
6. *Accessible* check-out aisles where not all aisles are *accessible*. The sign, where provided, shall be above the check-out aisle in the same location as the checkout aisle number or type of check-out identification.
7. Family or assisted-use toilet and bathing rooms.
8. *Accessible* dressing, fitting and locker rooms where not all such rooms are *accessible*.
9. *Accessible* areas of refuge in accordance with Section 1009.9.
10. Exterior areas for assisted rescue in accordance with Section 1009.9.
11. In recreational facilities, lockers that are required to be *accessible* in accordance with Section 1109.9.
12. <u>Accessible lavatories and sinks where lavatories or sinks are provided in clusters and not all are accessible.</u>

Reason: The code only requires a single lavatory in a group toilet room to be accessible and only five percent (5%) of sinks to be acessible. This means that one lavatory could be mounted at the proper height with proper toe and knee clearances and compliant pipe protection while the rest might be mounted at the proper height but without toe and knee clearances; or, more critically, without pipe protection. In some cases, due to the nature of the design, it may not be possible to know which of these are fully accessible without crawling under the counter to look; an action which is not likely for individuals who use wheelchairs. This could pose a risk to the unaware individual using the lavatory that does not fully comply. The proposal would provide adeqaute notification for those who need to know which lavatories and/or sinks are fully compliant.

Cost Impact: Will increase the cost of construction

The additional cost is the minimal cost of a sticker or sign with the International Symbol of Accessibility.

E169-15 : 1111.1-BOECKER5536

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There were several questions about requiring signage on accessible lavatories. What would the sign say? Where would it be located? How would it be maintained?

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com) requests Approve as Submitted.

Commenter's Reason: During numerous site inspections, we have noticed that although some of the lavatories in the toilet room comply (and, only one is requried to comply), some do not. The default observation from an inspection standpoint is that the toilet room complies since only one lavatory is requried to comply. From a user's standpoint, however, a person would be unaware that the height of the one lavatory is too high or that there's no insulation for the hot water line under another; and, that there are sharp edges below a third. As long as the fourth one complies, that's all that's needed to meet the requirement. But that puts the person using the facility at risk for inconvenience at the least and injury at the worst. We already have a requirement like this for check-out aisles where injury isn't the possibility. It's worth it to provide this information for the users.
The committee disapproved this proposal by one vote. It is obviously one with mixed opinions. During discussions several questions were raised:

- What would the sign say? A: It would include the International Symbol of Accessibility (ISA). That's what the charging section states. There is no need for anything else. The ISA would identify the acessible lavatory.
- Where would it be located? A: It would be located at the accessible lavatory basin. It could be on the mirror above it, next to it on the wall, on the front apron, anywhere it would be visible so that somebody would know that it complies.
- How would it be maintained? A: Like any other sign required by the code.

E169-15

FS1-15

703.4, 703.4 (New)

Proposed Change as Submitted

Proponent : Jeffrey Shapiro, Tyco Fire Protection Products, representing Tyco Fire Protection Products

2015 International Building Code

Delete and substitute as follows:

~~**703.4 Automatic sprinklers.** Under the prescriptive fire-resistance requirements of this code, the *fire-resistance rating* of a building element, component or assembly shall be established without the use of *automatic sprinklers* or any other fire suppression system being incorporated as part of the assembly tested in accordance with the fire exposure, procedures and acceptance criteria specified in ASTM E 119 or UL 263. However, this section shall not prohibit or limit the duties and powers of the *building official* allowed by Sections 104.10 and 104.11.~~

703.4 Automatic Sprinklers Assemblies utilizing fire sprinklers as an alternative to complying with a required fire resistance rating for a building element, component or assembly shall only be permitted where approved by the Building Official in accordance with Sections 104.10 and 104.11.

Reason: This proposal is based on text that was agreed to by major parties on both sides of the sprinklered-protected assembly issue during the last NFPA code cycle. At the second revision meeting of the NFPA Technical Committee on Fire Protection Features, a great deal of effort went into gaining this agreement, and it was supported by a majority of the committee members in attendance. Following the meeting, NFPA distributed the recommendation to the full committee for balloting, and it fell short of the required majority to advance in the process. Nevertheless, the proposed text provides a cleaner way of conveying the intent of this section, and it warrants consideration by ICC, recognizing that previous efforts to delete the section or argue that it is not needed have not been successful.

This text will make it clear that a sprinkler-protected assembly is an alternative to a fire-resistive assembly that requires approval of the building official, as opposed to being a fire-resistive assembly. This "alternative to" approach is consistent with terminology approved by ICC-ES for inclusion AC385 as a basis for evaluating assemblies that use window sprinklers.

Cost Impact: Will not increase the cost of construction
The proposal simply clarifies current provisions.

FS1-15 : 703.4-SHAPIRO5682

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that this should not be approved at this point as there were still many issues between the parties involved in the testimony. Further, the committee felt that the existing language was better as it was more positive than prohibitive and that the two referenced standards in the existing

language should stay and were appropriate.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jeffrey Shapiro, representing Tyco Fire Protection Products (jeff.shapiro@intlcodeconsultants.com); Daniel Nichols, representing New York State Dept. of State (dan.nichols@dos.ny.gov) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

703.2 Fire-resistance ratings. The *fire-resistance rating* of building elements, components or assemblies shall be determined in accordance with the test procedures set forth in ASTM E 119 or UL 263, without the use of automatic sprinklers or any other fire suppression system being incorporated as part of the test, or in accordance with Section 703.3. The *fire-resistance rating* of penetrations and fire-resistant joint systems shall be determined in accordance Sections 714 and 715, respectively.

703.3 Methods for determining fire resistance. The application of any of the methods listed in this section shall be based on the fire exposure and acceptance criteria specified in ASTM E 119 or UL 263. The required *fire resistance* of a building element, component or assembly shall be permitted to be established by any of the following methods or procedures:

1. Fire-resistance designs documented in approved sources.
2. Prescriptive designs of fire-resistance-rated building elements, components or assemblies as prescribed in Section 721.
3. Calculations in accordance with Section 722.
4. Engineering analysis based on a comparison of building element, component or assemblies designs having *fire-resistance ratings* as determined by the test procedures set forth in ASTM E 119 or UL 263.
5. Alternative protection methods as allowed by Section 104.11.
6. Fire-resistance designs certified by an approved agency.

~~**703.4 Automatic sprinklers.** Under the prescriptive fire-resistance requirements of this code, the *fire-resistance rating* of a building element, component or assembly shall be established without the use of *automatic sprinklers* or any other fire suppression system being incorporated as part of the assembly tested in accordance with the fire exposure, procedures and acceptance criteria specified in ASTM E 119 or UL 263. However, this section shall not prohibit or limit the duties and powers of the *building official* allowed by Sections 104.10 and 104.11.~~

Commenter's Reason: This comment attempts to capture discussion points from Memphis and previous meetings and provide a simpler approach to dealing with limiting the E119 test protocol to not include fire suppression systems. Although E119 doesn't allow this, it is understood that some interest groups want the point

emphasized in the IBC. Technical restrictions in 703.4 have been relocated to Section 703.2, since this is where compliance with E119 is established in the IBC. It's a more suitable place for the fire-suppression system limitation to reside. Alternatives to E119, including the reference to alternative methods per Section 104.11, will once again be consolidated in 703.3 without having to rely on a separate section (703.4) that is redundant with respect to performance based alternatives. If you compare the text of the public comment with the current text in 703.4, you will see that it is closely aligned so as to maintain the intent of current provisions while eliminating the ongoing confusion and concern associated with Section 703.4. Note that existing subsections of Section 703.2 are to be retained without change.

FS1-15

FS2-15
703.4

Proposed Change as Submitted

Proponent : Daniel Nichols, New York State Division of Building Standards and Codes, representing New York State Division of Building Standards and Codes (dnichols@dos.state.ny.us)

2015 International Building Code

Delete without substitution:

~~**703.4 Automatic sprinklers.** Under the prescriptive fire-resistance requirements of this code, the *fire-resistance rating* of a building element, component or assembly shall be established without the use of *automatic sprinklers* or any other fire suppression system being incorporated as part of the assembly tested in accordance with the fire exposure, procedures and acceptance criteria specified in ASTM E 119 or UL 263. However, this section shall not prohibit or limit the duties and powers of the *building official* allowed by Sections 104.10 and 104.11.~~

Reason: This proposal deletes language that prohibits the use of automatic sprinklers or other fire suppression systems from being considered in a fire resistance rating of a building material.
The use of fire protection systems, including sprinklers, are used to activate or provide passive fire protection features in several locations in the code, reference standards, and evaluation reports. Examples include:

Dropping magnet power on door hold-open devices when sprinkler flow activates the building notification system

Initiating the activation of fire-resistance rated power dividers to create separate fire areas within a building

Smoke and heat vent activation due to fire detection and/or sprinkler flow

Alternative elevator lobby products that activate due to automatic detector activiation

Water curtains around open escalator openings that are otherwise required to be enclosed

Water curtains on gasketed glass for atrium separation

The activation of all of these products makes each one of them go from no protection to full expected protection because of a fire protection system. Based on a review of the information regarding the inclusion of this code section, the potential failure of a sprinkler system was a main concern in the debate. I submit that the failure rate of sprinklers is the same whether it is part of a passive fire protection system or part of the activation sequence to get a passive fire protection system in place.

In regards to the specific language, it appears the goal was to prohibit the use of any system that utilized automatic sprinklers or fire suppression systems from the prescriptive requirements of this code. This is confusing language as it could be interpreted to only apply to IBC Section 721 (since the direct reference is not provided) or does it apply to all prescriptive designs, such as the UL directories? The language does not make it clear for the building official and, in turn, can potentially confuse the issue on the reference to 104.11.

From an application perspective, the use of automatic sprinkler water curtains has been permitted for many years as a method to increase the allowable openings in buildings (along with all of the above mentioned applications). Allowing sprinkler

heads that are part of fire ratings met a need in several applications we have dealt with in New York (based on ES report approved products), including the protection of required openings for light in existing buildings undergoing change of occupancy, and glazing needed for security purposes (both for the visual needs and to address the needs of high-impact glazing).

Thank you for your consideration. I understand that this topic has been fully vetted in previous code development cycles and thorugh the ICC-ES process. However, I believe that the I-Codes should be coordinated to the point that the interaction and reliance between passive and active fire protection systems should be consistent.

Cost Impact: Will not increase the cost of construction
The passage of the proposal will allow more choice in compliance methods for fire rated products.

FS2-15 : 703.4-NICHOLS5725

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Although alternative methods and materials are covered in Sections 104.10 and 104.11, the committee felt that the existing language should remain in the code as it clarified that, in general, automatic sprinklers cannot be used as part of an assembly that is tested to establish a fire resistance rating in accordance with the requirements of ASTM E119 or UL 263.

Assembly Motion: As Submitted
Online Vote Results: Failed
Support: 25.91% (107) Oppose: 74.09% (306)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Submitted.

Commenter's Reason: The International Building Code relies upon fire suppressions sytems to provide early warning and activtion of various passive fire protection devices as noted in the reason statement. This section of the code does not allow those specific adjustments to the requirements for fire resistance, that is contrary to those other provisions, and is confusing to everyone using the code. Fire suppression systems have been used and are recognized throughout the code as the basis for making buildings and occupants safer. To retain this statement in the code at least insinuates that these systems are not an integral part of fire and life safety in the ICC Codes, which is not true.

Public Comment 2:

Proponent : Ali Fattah, City of San Diego, representing City of San Diego (afattah@sandiego.gov) requests Disapprove.

Commenter's Reason: This public comment is submitted requesting disapproval. This issue was heavily debated in two forums the ICC Fire Safety Committee during the 2012 and 2015 IBC cycle at at the ICC Evaluation Services before the ICC-ES Evaluation Committee. The evaluation criteria for protecting glass with sprinklers in lieu of a fire barrier have been clarified and the scope of the evaluation and application has been limited. The section is necessary to allow the Building Official to request an evaluation report that at least give design criteria for the sprinklers and allow for almost a prescriptive approach. Absent this section the evaluation will have to be case by case and ICC ES will not maintain a report or criteria since the code does not address the issue. The Assembly vote was 74.09 % to oppose the assembly motion for As submitted and thereby affirm the committee vote to disapprove the code change. We urge the voting membership to support the decision of the Fire Safety Committee and to disapprove the code change.

FS2-15

FS3-15

703.5.1, Chapter 35

Proposed Change as Submitted

Proponent : Tony Crimi, representing North American Insulation Manufacturers Association (tcrimi@sympatico.ca)

2015 International Building Code

Revise as follows:

703.5.1 Elementary materials. Materials required to be noncombustible shall be tested in accordance with ASTM E 136 or ASTM E2652, using the acceptance criteria in ASTM E136.

Add new standard(s) as follows:
ASTM E2652 - Standard Test Method for Behavior of Materials in a Tube Furnace with a Cone- shaped Airflow Stabilizer, at 750°C.

Reason: Several of the I-Codes have varying definitions of the term "non-combustible material", each based upon the way in which the concept of "non-combustible" is used within that Code. Throughout the ICC code system, the concept of "noncombustible material" is based on the idea that the material should not ignite or burn when subjected to fire or heat
The concept of "noncombustible materials" and "noncombustibility" in terms of types of construction is widely used throughout the International Codes. The IBC, IFC, IEBC and IFGC do not contain a separate definition of "noncombustible", even though they use the terminology "non-combustible materials".

In common usage, the term "noncombustible" is used to denote materials which do not ignite or are not capable of sustaining combustion. The common Dictionary definitions for "noncombustible" are typically as follows:

> *Noncombustible, adj – incapable of being burned (Merriam -Webster's International Dictionary of the English Language, Unabridged, 2013)*

In the traditional use of the terminology and concept of "non-combustible" in the Codes has been based on acceptable performance when tested in accordance with ASTM E136, Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C. Materials passing the test are permitted limited flaming and other indications of combustion. However, these have traditional been acceptable. Understandably, ASTM E136 does not replicate the full spectrum of actual building fire exposure conditions. However, this test method does provide an assessment indicating those materials which do not act to aid combustion or add appreciable heat to an ambient fire.

ASTM has recently published another standard ASTM E2652-09, entitled Standard Test Method for Behavior of Materials in a Tube Furnace with a Cone-shaped Airflow Stabilizer, at 750°C. This test method is similar to ASTM E136, but based on the international standard for Noncombustibility. The key difference between the two standards is in the equipment. The apparatuses in this test method and in Test Method E 136 is that the furnace tube in this test method has a conical air-flow stabilizer section attached at its bottom. Both test methods use cylindrical furnace tubes. Unlike ASTM E136, the test ASTM E2652 Standard does not include mandatory pass/fail criterion. It allows those criteria to be determined by the Codes or other users. Appendix X3 also contains a comparison of results obtained from this apparatus versus ASTM E136. ASTM E136 has already been revised to include ASTM E2652 as an alternate methodology.

Cost Impact: Will not increase the cost of construction
This proposal provides an alternative methodology for use.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E2652, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS3-15 : 703.5.1-CRIMI4627

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee agreed that reference to ASTM E136 was appropriate as it internally refers to ASTM E2652. Further, it is not clear in ASTM E2652 that all thermocouples were required, whereas in ASTM E136 they are. Lastly, it is not clear which acceptance criteria in ASTM E136 needs to be applied when testing in accordance ASTM E2652.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Tony Crimi, representing North AMerican Insulation Manufacturers Association (tcrimi@sympatico.ca) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

703.5.1 Elementary materials. Materials required to be noncombustible shall be tested in accordance with ASTM E 136 or ASTM E2652, using the acceptance criteria ~~in~~ and measurements prescribed by ASTM E136.

Modify standard(s) as follows:

Commenter's Reason: The Committee acknowledged that reference to ASTM E2652 was appropriate for the reasons identified. However, there was some uncertainty about which pass/fail criteria would apply. Our intent is to require the same pass/fail criteria as currently exists in ASTM E136, using all fo the thermocouples required by ASTM E136, but using the ASTM E2652 apparatus. The modified language in this public comment further clarifies that when ASTM E2652 is used, the pass/fail criteria and measurements (including the thermocouple measurements) are those required by ASTM E136..

ASTM E2652-12, entitled *Standard Test Method for Behavior of Materials in a Tube Furnace with a Cone-shaped Airflow Stabilizer, at 750°C,* is comparable to ASTM E136, but based on the international standard for Noncombustibility. The key difference between the two standards is in the equipment. The apparatuses in this test method and in Test Method E 136 is that the furnace tube in this test method has a conical air-flow stabilizer section attached at its bottom. Both test methods use cylindrical furnace tubes. Like ASTM E136, the test Standard does not include mandatory pass/fail criterion. It allows those criteria to be determined by the Codes

or other users.

Appendix X3 of ASTM E2652 also contains a comparison of results obtained from this apparatus versus ASTM E136. ASTM E136 has already been revised to include ASTM E2652 as an alternate methodology.

FS3-15

FS4-15
703.7

Proposed Change as Submitted

Proponent : Albert Wege, representing Wege & Company (albertwege@yahoo.com)

2015 International Building Code

Revise as follows:

703.7 Marking and identification. ~~Where there is an accessible concealed floor~~
Fire walls, ~~floor-ceiling or *attic* space, *fire walls*,~~ *fire barriers*, *fire partitions*, *smoke barriers* and smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling ~~in the concealed space~~. Such identification shall be located in accessible concealed floor, floor-ceiling or attic spaces; and either:

1. ~~Be~~Include lettering not less than 3 inches (76 mm) in height with a minimum 3/8 inch (9.5 mm) stroke in a contrasting color incorporating the suggested wording. "FIRE AND/OR SMOKE BARRIER-PROTECT ALL OPENINGS" or other wording, located within 15 feet (4572 mm) of the end of each wall and at intervals not exceeding 30 feet (9144 mm) measured horizontally along the wall or partition~~.~~ ; or
2. Include ~~lettering~~ a contrasting color band of not less than 3 inches (~~76~~ 76mm) in height and lettering not less than 1/2 inch (12.7 mm) in height ~~with a minimum 3/8-inch (9.5 mm) stroke in a contrasting color~~ incorporating the suggested wording~~, "~~ : "FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS,~~"~~ " or other wording, repeating at intervals not more than 24 inches (610 mm) measured horizontally and continuously along the entire length of the fire wall, fire barrier, fire partition, smoke barrier or smoke partition.

Exception: Walls in Group R-2 occupancies that do not have a removable decorative ceiling allowing access to the concealed space.

Reason: In the 2009 IBC, the marking and identification of fire rated wall assemblies was introduced, to identify critical wall assemblies that protect occupants from fire and smoke spread as a result of breaches within said wall assemblies. Often, maintenance and operation crews, in addition to contractors, breach these wall assemblies to install ductwork, cabling, etc, without knowing that these walls are critical to the protection of the occupants in the event of a fire.
The 2009 IBC allow marking and identification lettering at a minimum of one- half inch (½") (12.7mm) incorporating the suggested wording: "FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS," to be repeated every thirty feet (30'-0") (9144 mm).

The 2012 IBC increased the marking and identification lettering to a minimum of 3" (76 mm) with a 3/8" (9.5mm) stroke incorporating the suggested wording: "FIRE

AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS," to be repeated every thirty feet (30'-0") (9144 mm) and within fifteen feet (15'-0") (4572 mm) of the end of each wall.

The challenge that has been encountered is that while the code section may be followed, placed at every thirty feet (30'-0) (9144 mm), the potential is still present that the lettering may still not be visible if placed behind above ceiling equipment, on other side of a duct, or if a maintenance worker happens to pop a ceiling tile mid-span and not see the text. Despite the three inch (3") (76 mm) lettering heights, these above ceiling spaces are not typically well- illuminated.

The proposal being brought forth in the code change request is to also allow marking and identification lettering at a minimum of one- half inch (½") (12.7mm) incorporating the suggested wording: "FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS, but that the marking and identification is continuous along the entire length of the wall assembly; that is, end- to – end. The suggested wording shall repeat at intervals of every 24" (610 mm) horizontally within a contrasting color ban no less than 3" (76 mm) in height.

Cost Impact: Will not increase the cost of construction
Alternative format.

FS4-15 : 703.7-WEGE3325

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that there were several conflicts in the proposed language, in that item #2 seems more stringent than item #1, the term "or other wording" is subjective and it appeared to require an accessible ceiling in all cases.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Albert Wege, Wege & Company, representing Wege & Company (albertwege@yahoo.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

703.7 Marking and identification.

~~Fire~~ Where there is an accessible concealed floor, floor-ceiling or attic space, fire walls, fire barriers, fire partitions, smoke barriers ~~and~~ , smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling in the concealed space stating "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS." or other wording. Such identification shall be ~~located~~ installed in ~~accessible concealed floor, floor-ceiling or attic spaces; and either~~ one of the following configurations:

1. ~~Include lettering not less than 3 inches (76 mm) in height~~

~~with a minimum 3/8 inch (9.5 mm) stroke in a contrasting color incorporating the suggested wording. "FIRE AND/OR SMOKE BARRIER-PROTECT ALL OPENINGS" or other wording,~~ Be located within 15 feet (4572 mm) of the end of each wall and at intervals not exceeding 30 feet (9144 mm) measured horizontally along the wall or partition~~; or~~

~~2. Include a contrasting color band of~~ . Lettering shall be not less than 3 inches (76mm) in height ~~and lettering not less than 1/2~~ with a minimum 3/8 inch (~~12.7~~ 9.5 mm) stroke in ~~height incorporating the suggested wording: "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," or other wording, repeating at intervals not more than 24 inches (610 mm) measured horizontally and continuously~~ a contrasting color.

2. Be continuous along the entire length of the ~~fire~~ wall~~, fire barrier, fire partition, smoke barrier~~ or ~~smoke~~ partition. Lettering shall not be less than 3/4 inch (19 mm) in height and shall be repeated at intervals not exceeding 24 inches (609 mm) horizontally within a minimum 3 inch (76 mm) band of contrasting color.

~~**Exception:** Walls in Group R-2 occupancies that do not have a removable decorative ceiling allowing access to the concealed space.~~

Commenter's Reason: The revised modification addresses the following CAH concerns:

1. remediation of conflicting language,
2. clarification for proposed Item # 2 (as an alternate means of compliance) see two figures that follow; and
3. clarification of where conditions warrant compliance with this code section.

FS4-15

FS7-15
704.2, 704.4.1

Proposed Change as Submitted

Proponent : David Tyree, American Wood Council, representing American Wood Council (dtyree@awc.org)

2015 International Building Code

Revise as follows:

704.2 Column protection. Where columns are required to have protection to achieve a *fire-resistance rating*, the entire column shall be provided individual encasement protection by protecting it on all sides for the full column height, including connections to other structural members, with materials having the required *fire-resistance rating*._ Where the column extends through a ceiling, the encasement protection shall be continuous from the top of the foundation or floor/ceiling assembly below through the ceiling space to the top of the column.

> **Exception:** Columns located in a wall of light frame construction and located entirely between the top and bottom plates shall be permitted to have the fire resistance ratings provided by the membrane protection provided by the fire-resistance rated wall.

704.4.1 Light-frame construction. Studs, columns, and boundary elements that are integral elements in ~~*load-bearing*~~ *walls* of light-frame construction, and are located entirely between the top and bottom plates shall be permitted to have required *fire-resistance ratings* provided by the membrane protection provided for the ~~*load-bearing*~~ *wall*.

Reason: Reason: This proposal is to provide further clarification to a code change proposal that was approved last cycle and is included in the 2015 IBC in Section 704.4. Elements within fire-resistance rated walls of light-frame construction are addressed directly in Section 704.4.1 (Light-frame construction) and can be a part of a fire-resistance rated wall assembly without additional fire protection. Many buildings are built out of typical light frame construction; the concentrated loads from trusses or beams must have a continuous load path to the foundation. Some jurisdictions are interpreting that those construction boundary elements, such as, built-up and solid structural elements, are columns and are requiring them to be provided with individual fire protection. It is the intent of this provision, which has been verified by ICC staff, that it was never the intent to require individual fire protection of these elements, as they are not considered a portion of the primary structural frame.
This proposal was discussed and revised based on comments from the Colorado Chapter ICC Code Changes Committee and clarifies this provision is not intended to address continuous columns, does not have any connections to any elements of a structural frame, and is within a rated wall assembly.
For a complete list of AWC code change proposals and additional information please go to http://www.awc.org/Code-Officials/2015-IBC-Code-Changes.

Cost Impact: Will not increase the cost of construction
By revising this section, there is no additional cost as it clarifies the intent of this code provision. If anything, this proposal will actually save money as some building officials and designers have interpreted this section to require stud packs or built-up columns within a rated wall assembly to be individually fire protected which

increases construction cost.

Public Hearing Results

Committee Action: **Approved as Modified**

Modification:

704.2 Column protection. Where columns are required to have protection to achieve a fire-resistance rating, the entire column shall be provided individual encasement protection by protecting it on all sides for the full column height, including connections to other structural members, with materials having the required fire-resistance rating. Where the column extends through a ceiling, the encasement protection shall be continuous from the top of the foundation or floor/ceiling assembly below through the ceiling space to the top of the column.

> **Exception:** Columns ~~located in a wall~~ that meet the limitations of ~~light frame construction and located entirely between the top and bottom plates shall be permitted to have the fire resistance ratings provided by the membrane protection provided by the fire-resistance rated wall~~ Section 704.4.1.

704.4.1 Light-frame construction. Studs, columns, and boundary elements that are integral elements in walls of light-frame construction, and are located entirely between the top and bottom plates or tracks shall be permitted to have required fire-resistance ratings provided by the membrane protection provided for the wall.

Committee Reason: The committee agreed that built-up solid structural elements, such as 2 or more vertical framing members, within fire-resistance rated walls of light-frame construction that meet the limitations of Section 704.4.1 can be a part of a fire-resistance rated wall assembly without requiring the individual ecasement protection of Section 704.2. The modification eliminates redundant language by referencing Section 704.4.1 for limitations. Further, the modification appropriately recognizes steel framing members for the same allowable use.

Assembly Motion: **Disapprove**
Online Vote Results: **Failed**
Support: 34.86% (114) Oppose: 65.14% (213)
Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Lee Kranz, City of Bellevue, WA, representing Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov); Jonathan Siu, representing City of Seattle Department of Planning & Development (jon.siu@seattle.gov) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

704.2 Column protection. Where columns are required to have protection to achieve a *fire-resistance rating*, the entire column shall be provided individual encasement protection by protecting it on all sides for the full column height, including connections to other structural members, with materials having the required *fire-resistance rating*. Where the column extends through a ceiling, the encasement protection shall be continuous from the top of the foundation or floor/ceiling assembly below through the ceiling space to the top of the column.

> **Exception:** ~~Columns~~ Wood columns that meet the limitations of Section 704.4.1.

704.4.1 Light-frame construction. Studs, ~~columns~~ boundary elements, and ~~boundary elements~~ wood columns that are integral elements in *walls* of light-frame construction, and are located entirely between the top and bottom plates or tracks shall be permitted to have required *fire-resistance ratings* provided by the membrane protection provided for the *wall*.

Commenter's Reason: The proposal adds "columns" to the list of elements that are allowed to be protected by the wall membrane in light frame construction. For a 1-hour fire-resistance rated wall, this wall membrane can be as little as one layer of 5/8" Type X GWB. Our understanding, based on the testimony and a separate discussion with the proponent at the Committee Action Hearings, is the proponent's intent was to address bundled studs used in king stud applications that could be construed by some building officials to be columns, and therefore, would require individual protection per Section 704.2. However, the proposed language inadvertently and inappropriately extends the same provision to steel columns.

In several jurisdictions in the state of Washington, it is common for steel pipe or tube columns supporting loads from multiple floors above to be embedded in stud walls. These columns can be very heavily loaded--which is why steel is required. Our recollection of the approved assemblies we've seen is that none would allow a single layer of 5/8" Type X GWB to serve as 1-hour rated protection of steel columns

Public Comment 2:

Proponent : Jonathan Siu, City of Seattle Department of Planning & Development, representing City of Seattle Department of Planning & Development (jon.siu@seattle.gov) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

704.2 Column protection. Where columns are required to have protection to achieve a *fire-resistance rating*, the entire column shall be provided individual encasement protection by protecting it on all sides for the full column height, including connections to other structural members, with materials having the required *fire-resistance rating*. Where the column extends through a ceiling, the encasement protection shall be continuous from the top of the foundation or floor/ceiling assembly below through the ceiling space to the top of the column.

~~**Exception:** Columns that meet the limitations of Section 704.4.1.~~

704.4.1 Light-frame construction. Studs~~, columns,~~ and boundary elements that are integral elements in *walls* of light-frame construction, and are located entirely between the top and bottom plates or tracks shall be permitted to have required *fire-resistance ratings* provided by the membrane protection provided for the *wall*.

Commenter's Reason: The proposal adds "columns" to the list of elements that are allowed to be protected by the wall membrane in light frame construction. For a 1-hour fire-resistance rated wall, this wall membrane can be as little as one layer of 5/8" Type X GWB. Our understanding, based on the testimony and a separate discussion with the proponent at the Committee Action Hearings, is the proponent's intent was to address bundled studs (a.k.a "ganged studs") used in king and jack stud applications that could be construed by some building officials to be columns, and therefore, would require individual protection per Section 704.2. However, we believe this is based on a misinterpretation of what constitutes a "column." That is, a king stud is not a column. In addition, the proposed language inadvertently and inappropriately extends the same provision to steel columns.

In several jurisdictions in the state of Washington, it is common for steel pipe or tube columns supporting loads from multiple floors above to be embedded in stud walls. These columns can be heavily loaded--which is why steel is required. Our recollection of the approved assemblies we've seen is that none would allow a single layer of 5/8" Type X GWB to serve as 1-hour rated protection of steel columns. If approved as modified by the Committee, this proposal could easily be interpreted to allow that single layer to serve as the protection for a steel pipe or tube column.

Because we believe a king stud composed of bundled studs is not a "column," this public comment resolves the issue by deleting the exception and text that refers to columns. We believe the remaining text will still accomplish the proponent's intent, since king and jack studs are covered by "boundary elements."

Public Comment 3:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Disapprove.

Commenter's Reason: It is not unusual to have in-wall columns supporting loads of 20,000 lbs or more. Girder trusses are an example of this. Membrane protection for these type of columns, which are part of the structural frame, is inadequate. No data was presented to justify removing this requirement.

FS7-15

FS9-15 Part I

704.2

Proposed Change as Submitted

Proponent : Timothy Pate, City and County of Broomfield representing Colorado Chapter Code Change Committee, representing City and County of Broomfield (tpate@broomfield.org)

2015 International Building Code

Revise as follows:

704.2 Column protection. Where columns are required to have protection to achieve a *fire-resistance rating*, the entire column shall be provided individual encasement protection by protecting it on all sides for the full column height, including connections to other structural members, with materials having the required *fire-resistance rating*._ Where the column extends through a ceiling, the encasement protection shall be continuous from the top of the foundation or floor/ceiling assembly below through the ceiling space to the top of the column.

> **Exception:** Columns located in unusable space as designated in section 711.2.6 and in Type VA, IIA, or IIIA construction.

Reason: Section 711.2.6 allows the deletion of installing the ceiling membrane of a 1 hour fire resistance rated floor/ceiling assembly over unusable spaces. These spaces are typically crawl spaces or under structural floor areas where the area is not being used for any building use such as mechanical equipment or storage. The concept is that there would not be anything that would start on fire so it does not make sense to delete the membrane of the floor/ceiling assembly but to still require the rating of any structural columns located within the unusable space.

There is not a definition of unusable space in the IBC but the IBC commentary gives the opinion that it is up to the Building Official to verify that there are no combustible materials other than construction elements which would allow effectively allow piping, conduits, and ductwork - nothing that would start a fire.

FOR REFERENCE PURPOSES ONLY:

711.2.6 Unusable space. In 1-hour fire-resistance-rated floor/ceiling aseemblies, the ceiling membrane is not required to be installed over unusable crawl spaces. In 1-hour fire resistance-rated roof assemblies, the floor membrane is not required to be installed where unusable attic space occurs above.

Cost Impact: Will not increase the cost of construction
This change could potentially lower the cost of construction in jurisdictions that have required these primary structural columns in crawl spaces to be individually protected.

FS9-15 Part I : 704.2-PATE3865

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: The committee felt that allowing the elimination of protection for columns in unusable spaces was inappropriate as unusable space is not defined and that storage in this space is not addressed. It would be difficult for a code official to verify that the space was not used for storage after the certificate of occupancy was issued.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Timothy Pate, representing City and County of Broomfield (tpate@broomfield.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

704.2 Column protection. Where columns are required to have protection to achieve a *fire-resistance rating*, the entire column shall be provided individual encasement protection by protecting it on all sides for the full column height, including connections to other structural members, with materials having the required *fire-resistance rating*. Where the column extends through a ceiling, the encasement protection shall be continuous from the top of the foundation or floor/ceiling assembly below through the ceiling space to the top of the column.

> **Exception:** Columns located in unusable ~~space~~ crawl spaces as designated in section 711.2.6 and in Type VA, IIA, or IIIA construction.

Commenter's Reason: With all due respect to the Fire Safety Committee I want to point out again that Section 711.2.6 already exists and is titled "Unusable space" and basically gives the exception to either not require the ceiling membrane of a 1 hour rated floor ceiling assembly over unusable crawl spaces and to not require the floor membrane of a 1 hour rated roof assembly where unusable attic space occurs above.

My original proposal with my floor modification (which is shown in this public comment) only says that if you have structural members – both primary and secondary – in the unusable crawl space they would not need the fire protection rating if the ceiling membrane was already allowed to not be installed.

The committee comments for disapproving talked about not being able to verify if this space would be used for storage in the future but if the building department approved a building to use section 711.2.6 they also would not have any means of verifying that the area would not be used for storage in the future. A Building Official should be able to approve something based on how plans are submitted.

As my original reason statement explains it does not make sense to allow

the ceiling membrane to be omitted but to still require the structural members to be protected. If there is nothing to burn there should not be any potential for any of the structural items to burn.

FS9-15 Part I

FS9-15 Part II

704.3

Proposed Change as Submitted

Proponent : Timothy Pate, City and County of Broomfield representing Colorado Chapter Code Change Committee, representing City and County of Broomfield (tpate@broomfield.org)

2015 International Building Code

Revise as follows:

704.3 Protection of the primary structural frame other than columns. Members of the primary structural frame other than columns that are required to have protection to achieve a *fire-resistance rating* and support more than two floors or one floor and roof, or support a load-bearing wall or a nonload-bearing wall more than two stories high, shall be provided individual encasement protection by protecting them on all sides for the full length, including connections to other structural members, with materials having the required *fire-resistance rating*.

> **~~Exception~~ Exceptions:**
> 1. Individual encasement protection on all sides shall be permitted on all exposed sides provided the extent of protection is in accordance with the required *fire-resistance rating*, as determined in Section 703.
> 2.Structural members located within unsuable space areas as designated in section 711.2.6 and in Type IIIA, IIA, or VA construction.

Reason: Reason:
Section 711.2.6 allows the deletion of installing the ceiling membrane of a 1 hour fire resistance rated floor/ceiling assembly over unusable spaces. These spaces are typically crawl spaces of under structural floor areas where there the area is not being used for any building use such as mechanical equipment or storage. The concept is that there would not be anything that would start on fire so it does not make sense to delete the membrane of the floor/ceiling assembly but to still require the rating of any primary structural members.

There is not a definition of unusable space in the IBC but the IBC commentary gives the opinion that it is up to Building Official to verify that there are no combustible materials other than construction elements which would allow piping, conduits, and ductwork – nothing that would start a fire.

For reference purposes only:

711.2.6 Unusable space. In 1-hour fire-resistance-rated Floor/ceiling assemblies, the ceiling membrane is not required to be installed over unusable crawl spaces. In 1-hour fire resistance-rated roof assemblies, the floor membrane is not required to be installed where unusable attic space occurs above.

Cost Impact: Will not increase the cost of construction
This change could potentially lower the cost of construction in jurisdictions that have required these primary structural members other than columns in crawl spaces to be individually protected.

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: The committee felt that allowing the elimination of protection for primary structural framing, other than columns, in unusable spaces was inappropriate as unusable space is not defined and that storage in this space is not addressed. It would be difficult for a code official to verify that the space was not used for storage after the certificate of occupancy was issued.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Timothy Pate, representing City and County of Broomfield (tpate@broomfield.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

704.3 Protection of the primary structural frame other than columns. Members of the primary structural frame other than columns that are required to have protection to achieve a *fire-resistance rating* and support more than two floors or one floor and roof, or support a load-bearing wall or a nonload-bearing wall more than two stories high, shall be provided individual encasement protection by protecting them on all sides for the full length, including connections to other structural members, with materials having the required *fire-resistance rating*.

> **Exceptions:**
> 1. Individual encasement protection on all sides shall be permitted on all exposed sides provided the extent of protection is in accordance with the required *fire-resistance rating*, as determined in Section 703.
> 2.Structural members located within unsuable crawl space areas as designated in section 711.2.6 and in Type IIIA, IIA, or VA construction.

Commenter's Reason: With all due respect to the Fire Safety Committee I want to point out again that Section 711.2.6 already exists and is titled "Unusable space" and basically gives the exception to either not require the ceiling membrane of a 1 hour rated floor ceiling assembly over unusable crawl spaces and to not require the floor membrane of a 1 hour rated roof assembly where unusable attic space occurs above.

My original proposal with my floor modification (which is shown in this public comment) only says that if you have structural members – both primary and secondary – in the unusable crawl space they would not need the fire

protection rating if the ceiling membrane was already allowed to not be installed.

The committee comments for disapproving talked about not being able to verify if this space would be used for storage in the future but if the building department approved a building to use section 711.2.6 they also would not have any means of verifying that the area would not be used for storage in the future. A Building Official should be able to approve something based on how plans are submitted.

As my original reason statement explains it does not make sense to allow the ceiling membrane to be omitted but to still require the structural members to be protected. If there is nothing to burn there should not be any potential for any of the structural items to burn.

FS9-15 Part II

FS11-15

202 (New), 705.2

Proposed Change as Submitted

Proponent : Stephen Thomas, representing Colorado Chapter ICC (sthomas@coloradocode.net)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

PROJECTION A floor, roof or appendage extending beyond any exterior wall of a building; such as cornices, eave overhangs, exterior decks or balconies, canopies, porte cocheres and similar protrusions.

Revise as follows:

705.2 Projections. ~~Cornices, eave overhangs, exterior balconies and similar projections extending beyond the exterior wall~~
Projections shall conform to the requirements of this section and Section 1406. Exterior egress balconies and exterior exit stairways and ramps shall comply with Sections 1021 and 1027, respectively. _Projections shall not extend any closer to the line used to determine the fire separation distance than shown in Table 705.2.

> **Exception:**_ Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with this section for projections between the buildings.

Reason: There appears to be some confusion as to what a projection is or isn't. We have provided a new definition to clarify what they may be. By defining what a projection is, the code user will be able to enforce the code more consistently. We have also revised Section 705.2 to remove the list of projections and replace it with the defined term. The term "projection" appears in many locations throughout the IBC. This definition will provided more guidance for the user.

Cost Impact: Will not increase the cost of construction
This change is a clarification of the code. If anything, the change will reduce the cost of construction because a projection will not be required to fire-resistant rated in some cases.

FS11-15 : 705.2-THOMAS4442

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Defining "projection" may not be appropriate as the term is used in the code for many instances that do not always apply to what this definition is trying to address. Further, inclusion of decks in the proposed definition is inconsistent with the existing provisions in Section 705.2. Lastly, the proponent should consider allowing flexibility in the definition by indicating "such as but not limited to" prior to the list of projection examples within the definition.

Individual Consideration Agenda

Public Comment 1:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

PROJECTION A floor, roof or appendage extending beyond ~~any~~ the exterior wall of a building; such as cornices, eave overhangs, ~~exterior decks or~~ cantilevered balconies~~, canopies, porte cocheres~~ and similar ~~protrusions~~ appendages.

Commenter's Reason: There is a need to define what a projection is but the proposal included canopies and other items that can be large in size and can include usable space. Projections can be located as close as a fire separation distance of 40 inches. Historically balconies have been included and the method of support caused issues during implementation of the UBC where the fire separation distance was measured from the face of the post/beam portion of a supported balcony. The public comment is submitted since the definition should be in the definition chapter and not in the scoping sentence of the section. We heard testimony on FS 18 that Clark County regulated the separation from the face of the deck or supported balcony. What complicates things as well is that the definition of deck was removed from Ch 16 of the IBC in the 2009 IBC so there is no description of whether the balcony is cantilevered or not.

Public Comment 2:

Proponent : Stephen Thomas, Colorado Code Consulting, LLC, representing Colorado Chapter ICC (sthomas@coloradocode.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

BUILDING PROJECTION A floor, roof or appendage extending beyond any exterior wall of a building~~;~~ such as , but not limited to cornices, eave overhangs, exterior decks or balconies, canopies, awnings, porte cocheres and similar protrusions.

705.2 Projections. ~~Projections~~ Building projections shall conform to the requirements of this section and Section 1406. Exterior egress balconies and exterior exit stairways and ramps shall comply with Sections 1021 and 1027, respectively. Projections shall not extend any closer to the line used to determine the fire separation distance than shown in Table 705.2.

Exception: Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with this section for projections between the buildings.

Commenter's Reason: The committee felt that a definition would be helpful in the enforcement of the code. However, they felt if needed to be expanded and be more specific to Exterior wall projections. Therefore, we have revised the language to include the term "such as, but not limited" to address projections that may not be included in the definition. We have also changed the title from Projections to Building Projections to differentiate this definition from other sections in the code that use projections in them. For example projection rooms and projections into ramps. It is not our intent to apply this definition to those sections of the IBC.
We feel that this definition is necessary to provide a clearer description of what a projection is. The charging statement essentially defines what it is, but is not comprehensive enough in our opinion. By providing a definition in Chapter 2, the intent will be clearer for the user. There was testimony regarding the inclusion of decks in the definition. It is our opinion that the fire characteristics are the same for decks and balconies. Fires below or adjacent to decks or balconies will act the same. The installation of columns on the outside of a balcony does not change these characteristics.

FS11-15

FS14-15
Table 705.2

Proposed Change as Submitted

Proponent : Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Revise as follows:

TABLE 705.2
MINIMUM DISTANCE OF PROJECTION

FIRE SEPARATION DISTANCE (FSD)	MINIMUM DISTANCE FROM LINE USED TO DETERMINE FSD
0 feet to 2 feet	Projections not permitted
Greater than 2 feet to 3 feet	24 inches
Greater than 3 feet to less than 30 feet	~~24 inches plus 8 inches for every foot of FSD beyond 3 feet or fraction thereof~~ 2' + 2/3(FSD - 3')
30 feet or greater	20 feet

For SI: 1 foot = 304.8 mm; 1 inch = 25.4 mm.

Reason: Add formula 2' + 2/3(FSF - 3') to replace text "24 inches plus 8 inches for every foot of FSD beyond 3 feet or fraction thereof" to simplify use.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction. Revisions to Table 705.2 will simplify the existing requirements and will not affect the current costs of construction.

FS14-15 : T705.2-CUEVAS4802

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee preferred the existing language over the proposed formula based understandability and enforceability.

Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Victor Cuevas, representing City of Los Angeles (victor.cuevas@lacity.org) requests Approve as Submitted.

Commenter's Reason: Will attempt to further clarify the issue with the way the current language is written. This will hopefully convince the committee to accept the proposed amendment.

FS14-15

FS15-15

603.1, 705.2.3, 705.2.3.1 (New), 705.2.4 (New), 1406.1, 1406.3, 1406.4

Proposed Change as Submitted

Proponent : Jonathan Siu, representing City of Seattle Department of Planning & Development (jon.siu@seattle.gov)

2015 International Building Code

Revise as follows:

705.2.3 Combustible projections. Combustible projections extending to within 5 feet (1524 mm) of the line used to determine the *fire separation distance* shall be of not less than 1-hour fire-resistance-rated construction, Type IV construction, fire-retardant-treated wood or as ~~required~~ permitted by Section ~~1406.3~~ 705.2.3.1.

> **Exception:** Type VB construction shall be allowed for combustible projections in Group R-3 and U occupancies with a fire separation distance greater than or equal to 5 feet (1524 mm).

Add new text as follows:

705.2.3.1 Balconies and similar projections. Balconies and similar projections of combustible construction other than fire-retardant-treated wood shall be fire-resistance rated where required by Table 601 for floor construction or shall be of Type IV construction in accordance with Section 602.4. The aggregate length of the projections shall not exceed 50 percent of the building's perimeter on each floor.

Exceptions:

1. On buildings of Type I and II construction, three stories or less above grade plane, fire-retardant-treated wood shall be permitted for balconies, porches, decks and exterior stairways not used as required exits.
2. Untreated wood is permitted for pickets and rails or similar guardrail devices that are limited to 42 inches (1067 mm) in height.
3. Balconies and similar projections on buildings of Type III, IV and V construction shall be permitted to be of Type V construction, and shall not be required to have a fire-resistance rating where sprinkler protection is extended to these areas.
4. Where sprinkler protection is extended to the balcony areas, the aggregate length of the balcony on each floor shall not be limited.

705.2.4 Bay and oriel windows. Bay and oriel windows shall conform to the type of construction required for the building to which they are attached.

> **Exception:** Fire-retardant-treated wood shall be permitted on buildings three stories or less above grade plane of Type I, II, III or IV construction.

Delete without substitution:

~~**1406.1 General.** Section 1406 shall apply to *exterior wall coverings*;~~

~~balconies and similar projections; and bay and oriel windows constructed of combustible materials.~~

~~**1406.3 Balconies and similar projections.** Balconies and similar projections of combustible construction other than fire-retardant-treated wood shall be fire-resistance rated where required by Table 601 for floor construction or shall be of Type IV construction in accordance with Section 602.4. The aggregate length of the projections shall not exceed 50 percent of the building's perimeter on each floor.~~

~~**Exceptions:**~~

1. ~~On buildings of Type I and II construction, three stories or less above *grade plane*, *fire-retardant-treated wood* shall be permitted for balconies, porches, decks and exterior stairways not used as required exits.~~
2. ~~Untreated wood is permitted for pickets and rails or similar guardrail devices that are limited to 42 inches (1067 mm) in height.~~
3. ~~Balconies and similar projections on buildings of Type III, IV and V construction shall be permitted to be of Type V construction, and shall not be required to have a *fire-resistance rating* where sprinkler protection is extended to these areas.~~
4. ~~Where sprinkler protection is extended to the balcony areas, the aggregate length of the balcony on each floor shall not be limited.~~

~~**1406.4 Bay and oriel windows.** Bay and oriel windows shall conform to the type of construction required for the building to which they are attached.~~

~~**Exception:***Fire-retardant-treated wood* shall be permitted on buildings three stories or less above grade plane of Type I, II, III or IV construction.~~

Reason: This proposal is editorial in nature, making no technical changes. It simply relocates the provisions that state the protection and type of construction requirements for combustible decks and balconies, and bay and oriel windows from Chapter 14 to Chapter 7. Chapter 14 is mostly about exterior finishes, and these provisions are likely to be missed there. Chapter 7 is a more appropriate location for these provisions, since Section 705.2 already deals with type of construction and fire-resistance rated protection for projections.
Section 1406.1 is deleted since it only contained general charging language, which is not necessary now that only one section remains in Section 1406 (currently 1406.2, to be renumbered to 1406.1).

Cost Impact: Will not increase the cost of construction
Because this is an editorial relocation of existing provisions, there is no change in the regulations and therefore, no change in the cost of construction.

FS15-15 : 705.2.3-SIU4694

Public Hearing Results

Committee Action: Approved as Modified

Modification:

603.1 Allowable materials. Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

(no changed to items 1 through 12)

13. Combustible exterior wallcoverings, balconies and similar projections and bay or oriel windows in accordance with Chapter 14 and Section 705.2.3.1.

(no changes to items 14 through 18

19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.7 and ~~1406.3~~705.2.3.1.

(no changes to remaining items)

705.2.4 Bay and oriel windows. Bay and oriel windows constructed of combustible materials shall conform to the type of construction required for the building to which they are attached.

Exception: Fire-retardant-treated wood shall be permitted on buildings three stories or less above grade plane of Type I, II, III or IV construction.

Committee Reason: The committee agreed that relocating these provisions to Chapter 7 from Chapter 14 was more effective from the code user's standpoint. The modifications appropriately correct section references to coordinate with the relocation and correctly clarify that the requirements for bay and oriel windows applied to those constructed of combustible materials.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

705.2.4 Bay and oriel windows. Bay and oriel windows ~~constructed of combustible materials~~ shall conform to the type of construction required for the building to which they are attached.

Exception: Fire-retardant-treated wood shall be permitted on buildings

three stories or less above grade plane of Type I, II, III or IV construction.

Commenter's Reason: The added clause "constructed of combustible materials" in section 705.2.4 is unnecessary and will potentially cause problems. For example, aluminum is a noncombustible material used for windows but it needs to conform to the requirements for the appropriate type of construction.

FS15-15

FS16-15
705.8

Proposed Change as Submitted

Proponent : Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2015 International Building Code

Revise as follows:

705.8 Openings. Openings in *exterior walls* shall comply with Sections 705.8.1 through 705.8.6. For structures or portions of structures not provided with surrounding exterior walls and with usable area under the horizontal projection of the roof or floor above, exterior wall shall mean the primary structural frame supporting the roof or floor above.

Reason: The proposed code change addresses exterior opening protection for structures and buildings, and portions thereof that do not include surrounding exterior walls.
The IBC does not address the protection of covered exterior portions of a building that cannot be classified as projections and that provide shelter for useable space. The useable space is included in building area and fire area where applicable however the code does not seem to regulate the proximity of the useable space relative to the lot line.

- Projections appear to be elements attached to exterior walls that do not include useable space below.
- Exterior balconies are not defined and appear to be the exception and seem to be regulated similar to eaves and cornices and it is implied that they cantilever from the wall of the building.

Table 601 footnote (f) referenced under primary structural frame requires that the fire resistance of the structural frame to comply with Section 704.10 in addition to Table 601. As a consequence the structural frame on the outside of a building or structure without a surrounding exterior wall is required to comply with Table 602 as if it were a wall. However since the primary structural frame does not comply with the definition for wall it is necessary to modify Section 705.8 to make clear that openings within the primary structural frame are regulated.

Some structures addressed by this code change may include canopies over gasoline pump islands; canopies over play grounds or picnic areas; useable areas under portions of buildings where the upper stories are larger than portions below and closer to a lot line, etc.

Most Building Officials will consider that the face of the building to be the structural frame and would regulate the percentage of exterior openings within, however the IBC as written does not support this interpretation.

Currently as written the IBC implies that if an exterior wall is not provided then the openings on the exterior perimeter are not regulated since they are not openings in an exterior wall. A written interpretation from ICC confirms this.

Cost Impact: Will increase the cost of construction
The proposed code change is necessary for public safety and to provide more consistent application of the exterior wall opening protection requirements. The increased of construction will result is safer communities that are more resilient

when faced with natural disasters that interrupt water supplies and power for extended periods of time since it ensures a protected building perimeter that can limit conflagration hazards.

FS16-15 : 705.8-FATTAH5674

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that these requirements were confusing in that it was not clear when an exterior wall was required. Futher, the committee felt that the requirements would be better located with the fire separation distance requirements in Chapter 6.

Assembly Motion: As Submitted

Online Vote Results: Failed

Support: 32.51% (132) Oppose: 67.49% (274)

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Glanville, representing City of San Diego requests Approve as Submitted.

Commenter's Reason: I think the code change is needed since exterior opening protection will drive location more than section 602 through table 602. Also while table 602 applies to exterior walls, section 704.10 requires exterior columns to be protected when there are no walls and protection is required by T 602.

Public Comment 2:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

705.5 Fire-resistance ratings. ~~*Exterior*~~ *Fire-resistance* rated *exterior walls* shall be ~~fire-resistance rated~~ provided to separate occupancies from lot lines based on fire separation distance in accordance with Tables 601 and 602 and this section. The required *fire-resistance rating* of *exterior walls* with a *fire separation distance* of greater than 10 feet (3048 mm) shall be rated for exposure to fire from the inside. The required *fire-resistance rating* of *exterior walls* with a *fire separation distance* of less than or equal to 10 feet (3048 mm) shall be rated for exposure to fire from both sides.

705.8 Openings. Openings in *exterior walls* shall comply with Sections 705.8.1 through 705.8.6. ~~For structures or portions of structures not provided with surrounding exterior walls and with usable area under the~~

~~horizontal projection of the roof or floor above, exterior wall shall mean the primary structural frame supporting the roof or floor above.~~ _

Commenter's Reason: This public comment is submitted in response to testimony and committee member comments during the code action hearings. Opponents were concerned that by stating that the structural frame needed to be considered a wall when determining exterior opening protection. a suggestion was made to add a special section on canopies and and similar structures that have no walls. A suggestion was to also put the code change in Section 705.5 since it was not appropriate in the opening section. The proposed code change takes a different approach and requires a fire resistance to separate an occupancy from a lot line. This will address the majority of the cases since when building area is proposed an occupancy must be assigned to the usable area below the roof overhang. Canopies regulated in Section 3105 are probably not assigned an occupancy unless they cover usable space such as gasoline pump islands, out door dining areas, bank teller drive aisles etc. As presently written the code refers you to a table and seems to imply that ifyou happen to have an exterior wall you protect the wall construction based on fire separation distance. Section 705 intends that a building protect it's neighbor's from itself and itself from it's neighbors. However at a fire separation distance that is 10 ft or greater the exterior portion of the wall does not require protection from fire, openings are still however limited until about 20 ft fire separation for most buildings.

Public Comment 3:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

705.5.1 Canopies and Buildings Without Exterior Walls Canopies, and similar buildings or structures or portions thereof, without surrounding exterior walls shall be located at a fire separation distance of 10 ft or shall comply with Section 705.5 and Section 705.8. Projections beyond the exterior most primary structural frame shall comply with Section 705.2. Exterior wall shall mean the primary structural frame located at the exterior perimeter of the structure.

705.5.1.1 Canopies and Structure Accessory to Group R-3 Attached or detached canopies, and similar buildings or structures or portions thereof, that are accessory to group R-3 and without surrounding exterior walls shall be located at a fire separation distance of 5 ft or shall comply with Section 705.5.1.

705.5.1.2 Canopies and Structures Accessory to Group F, H, S and M Occupancies. Attached or detached canopies, and similar buildings or structures or portions thereof, and that are accessory to other than Group F, H, S and M and without surrounding exterior walls shall comply with Section 705.5 and Section 705.8.

3105.5 Location on Lot Canopies shall be located at a fire separation distance complying with Section 705.5.1.

Commenter's Reason: This public comment is submitted to address comments

raised at the committee action hearings where at least speakers in opposition supported the concept but were opposed to where the code change was proposed. They suggested that canopies be separated out as a unique issued when needs to be determined.
We had difficulty finding an ideal location for the requirement in Section 705. Chapter 6 was ruled out since Section 705.5 refers to Table 602. Additionally Section 705.8.1 Exception # 2 allows buildings whose exterior bearing walls, exterior non bearing walls and exterior primary structural frame are not required to be fire-resistance rated shall be permitted to have unlimited unprotected openings, so it follows that a logical amendment addressing the canopies issue would be a subsection to 705.5.

This code change treats canopies and such open structures at a fire separation distance of 10 ft similar to parking garages in Table 705.8 footnote (g) and table 602 that exempts most walls located at a fire separation distance of 10 ft. Canopies are regulated in Section 3105 and fire separation distance is not addressed so a cross reference is added to the proposed Section.

Public Comment 4:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Disapprove.

Commenter's Reason: This proposal would require the same protection of exterior openings for open areas under overhangs or cantilevered portion of the building. This proposal would require openings between the structural members (columns and piers of pedestal or cantilevered buildings) to meet the opening protection requirements of 705.8, which would require fire doors, fire shutter or other protective opening provisions, if the opening between the structural members exceeds the percentage of allowable area opening in accordance with table 705.8
We believe this needs more study and investigation to understand the full impace of such a dramatic change. In the change it describes that the areas are "usable" without explanation and no definition. Does this limit the openings between the exterior columns on the facade become the opening that must be protected? This isn't clear, and would cause significant problems in its application of the code.

FS16-15

FS17-15
705.8.1

Proposed Change as Submitted

Proponent : Stephen Thomas, representing Colorado Chapter (sthomas@coloradocode.net)

2015 International Building Code

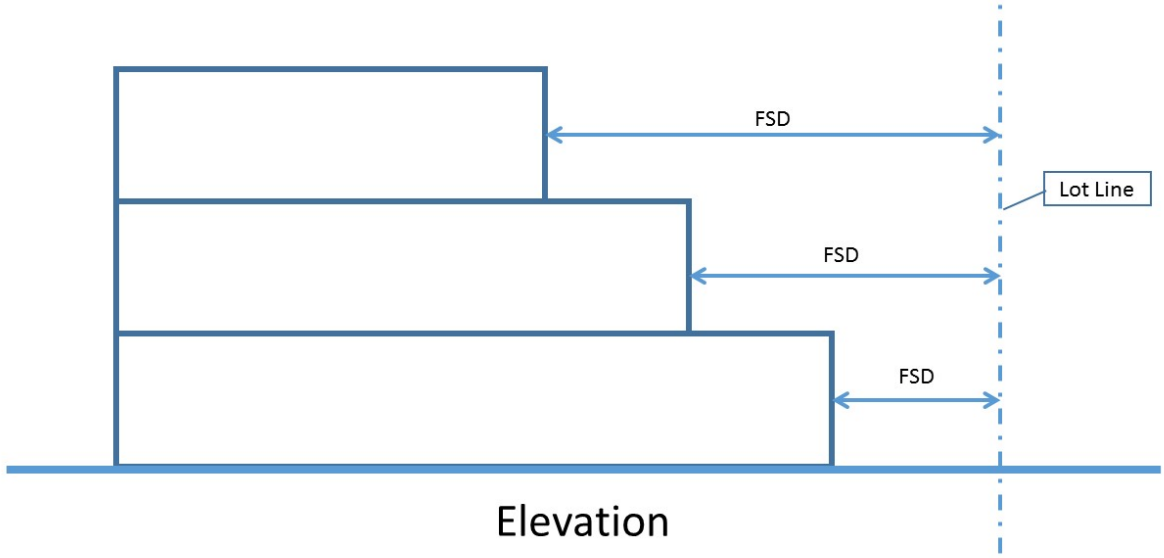
Revise as follows:

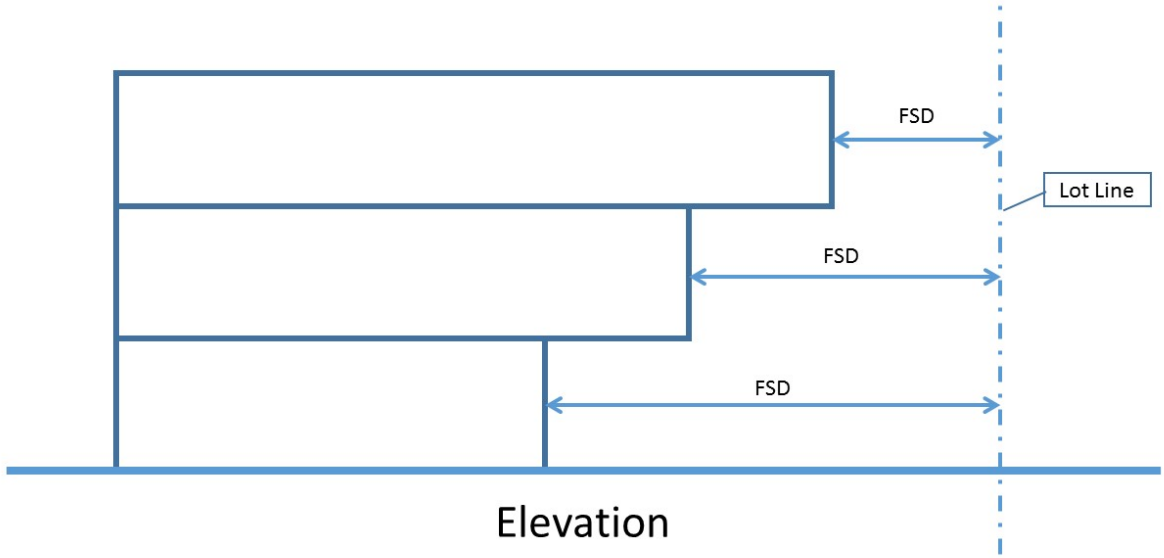
705.8.1 Allowable area of openings. The maximum area of unprotected and protected openings permitted in an *exterior wall* in any *story* of a building shall not exceed the percentages specified in Table 705.8 based on the fire separation distance of each individual story.

Exceptions:

1. In other than Group H occupancies, unlimited unprotected openings are permitted in the first *story* above grade plane either:
    - 1.1. Where the wall faces a street and has a *fire separation distance* of more than 15 feet (4572 mm); or
    - 1.2. Where the wall faces an unoccupied space. The unoccupied space shall be on the same lot or dedicated for public use, shall be not less than 30 feet (9144 mm) in width and shall have access from a street by a posted fire lane in accordance with the *International Fire Code*.
2. Buildings whose exterior bearing walls, exterior nonbearing walls and exterior primary structural frame are not required to be fire-resistance rated shall be permitted to have unlimited unprotected openings.

Reason: The intent of this change is to clarify that the limitation of openings in exterior walls is based on the fire separation distance of each individual story. There appears to be confusion on how to evaluate openings in exterior walls when an upper floor extends out over a lower floor. We believe that the opening protection is determined at the exterior wall of the story, not the wall plane of the story above. Just the opposite would be true if the building was a pyramid style building where the upper floors step back from the floor below. The opening protection would depend on the distance to the lot line at each story, not the first story. Please see attached diagrams.





Cost Impact: Will not increase the cost of construction
The change clarifies the intent of the code. There is no affect on the construction cost.

FS17-15 : 705.8.1-THOMAS4446

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The committee agreed that this proposal clarifies that the limitation of openings in exterior walls is based on the fire separation distance of each individual story, rather than only based on the FSD of the first story.

Individual Consideration Agenda

Public Comment 1:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests Disapprove.

Commenter's Reason: We urge disapproval of this code change.
The proposed code change was approved by the committee in lieu of FS 18 even though they addressed two different issues. FS 17 addresses the method of measurement. FS 18 address the hazards of usable space under a story of a building that is larger than the story below.

The definition of fire separation distance in Section 202 is a measurement from the building face and is a method of measurement to a reference point whether a lot line or an imaginary line. It stands to reason that if the code intent is for a lot line or imaginary line to be vertical that there should be one line used for measurement purposes. When the term is used the code intends it to be used as a measurement to the same reference so the code change is not necessary. The code change however has a negative consequence and reduces fire protection without technical justification. Additionally the definition add in FS 11 may lead to the portion of the upper story projecting beyond the lower smaller story a projection.

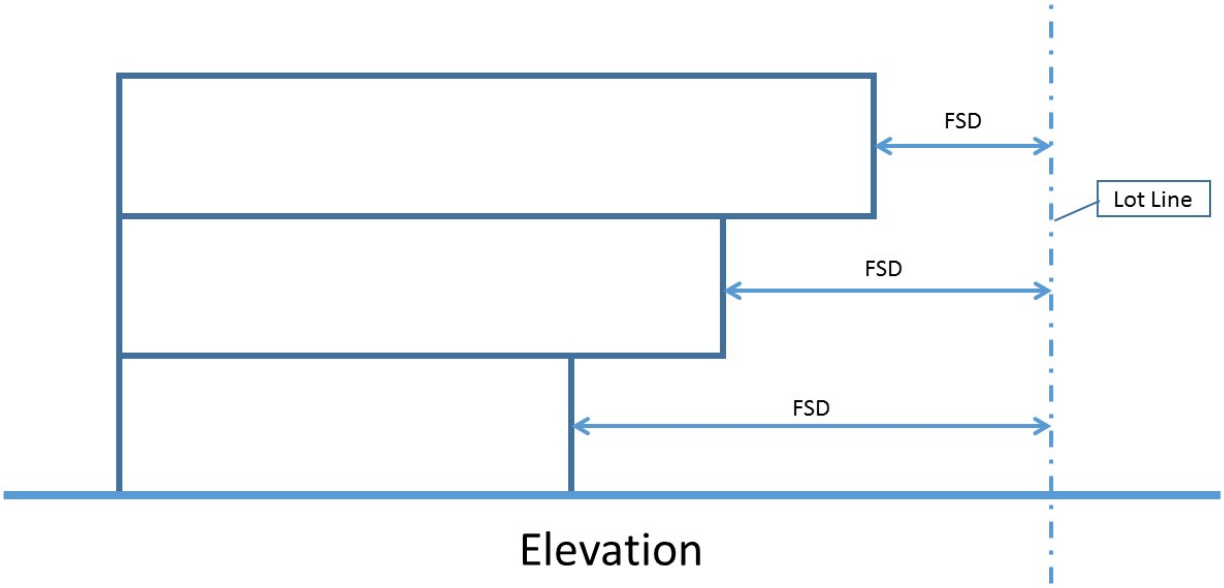
Additionally Section 705.5 and 705.8.1 makes clear that the area measurement for openings is per story based on the fire separation distance (which is to the building face). Evaluation of the inverted wedding cake scenario should be evaluated on a case by case basis and this code change does not allow for that. FS 18 was addressing an issue that Section 705.5 and Table 602 never require an exterior wall but tell when an exterior wall needs to be fire resistance rated based on occupancy, type of construction and fire separation distance. An exterior wall should be required to protect a neighboring property from the hazards of an occupancy and its fire loading. FS 17 would allow a upper story located 6 inches from a lot line with no exterior wall openings to have a story below with no exterior wall with occupants able to touch the neighboring property's fence or event the exterior wall.

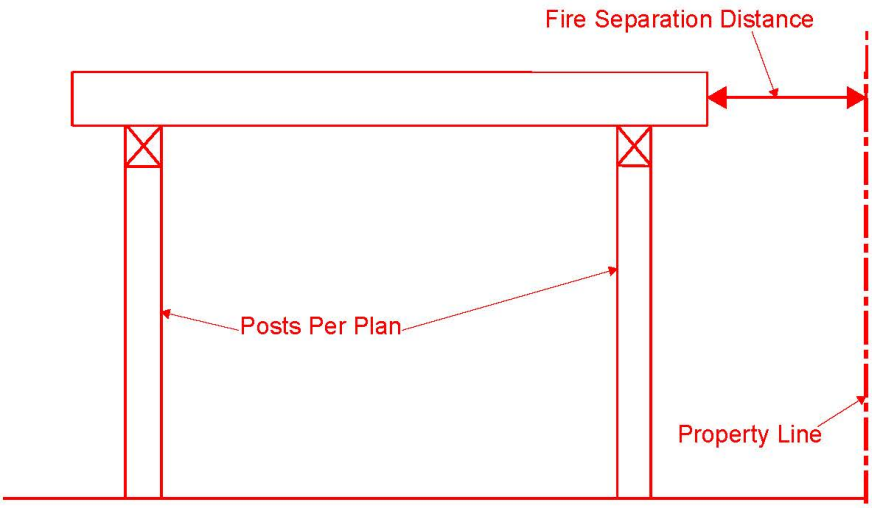
Public Comment 2:

Proponent : Lee Kranz, City of Bellevue, WA , representing Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov) requests Disapprove.

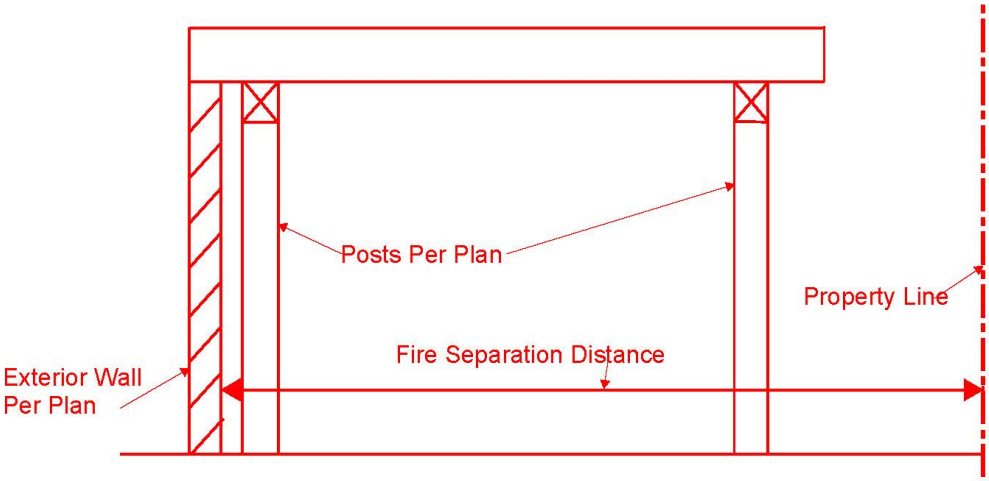
Commenter's Reason: The image below, which was provided in the proponent's original reason statement, shows a multi-story building with upper levels extending closer to the property line than the lower levels. In many cases, areas located below the upper levels would count as floor area based on the definition of *Building area.* The text in this definition states that "Areas of the building not provided with surrounding walls shall be included in the building area if such areas are included within the horizontal projection of the roof or floor above". There have been many case studies of conflagration fires due to radiant heat transfering from one building to the projecting horizontal surfaces of another building if that building is located too close to the property line and has not been provided with rated exterior walls and protected openings at the outboard edge of the overhang.
This code change also does not address exterior wall and opening protection for

structures with no exterior walls such as carports (see carport illustrations below). Does constructing a wall below the edge of a carport roof on the side opposite to the property line setback change the way fire would spread from one parcel improvement to the other? Based on this code change, constructing such a wall would allow the open side of the carport to extend all the way to the property line because the setback to the exterior wall would be on the side opposite of the open carport roof edge. This code change has potentially dangerous consequences and should not be approved.





Carport with no exterior walls. Under the current code the setback is measured to edge of roof based on definition of "*Building Area*" and "*Fire Separation Distance*".



Carport with exterior wall. The proposed code change would allow the setback to be measured to the exterior wall located at the opposite side of the carport. This could result in the roof edge having a zero setback without a rated exterior wall or opening protectives adjacent to the property line.

FS17-15

FS18-15
705.8.1

Proposed Change as Submitted

Proponent : Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2015 International Building Code

Revise as follows:

705.8.1 Allowable area of openings. The maximum area of unprotected and protected openings permitted in an *exterior wall* in any *story* of a building shall not exceed the percentages specified in Table 705.8.

Exceptions:

1. In other than Group H occupancies, unlimited unprotected openings are permitted in the first *story* above grade plane either:
    - 1.1. Where the wall faces a street and has a *fire separation distance* of more than 15 feet (4572 mm); or
    - 1.2. Where the wall faces an unoccupied space. The unoccupied space shall be on the same lot or dedicated for public use, shall be not less than 30 feet (9144 mm) in width and shall have access from a street by a posted fire lane in accordance with the *International Fire Code*.
2. Buildings whose exterior bearing walls, exterior nonbearing walls and exterior primary structural frame are not required to be fire-resistance rated shall be permitted to have unlimited unprotected openings.
3. <u>In other than Group R-3 occupancies, or Group R-2 occupancies constructed of Type VB construction, unlimited unprotected openings are permitted for useable areas located under portions of a building above when the roof or floor above is located at a fire separation distance is 10 feet or greater.</u>

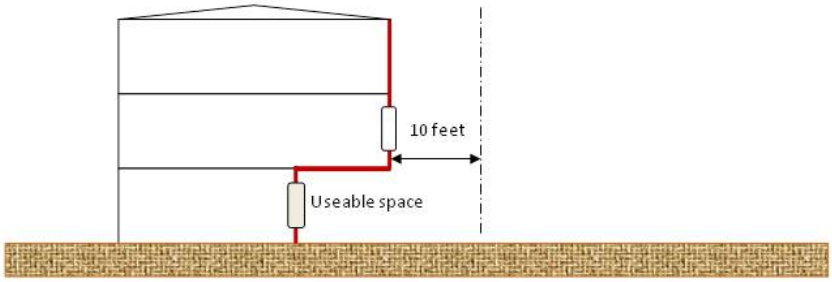
Reason: The IBC does not clearly regulate exterior opening protection when buildings include vertical offsets under which useable space occurs. The useable spaces below pose a hazard to structures and buildings on adjoining properties and no exterior walls exist under the projection of the building above.
Proposed exception # 3 addresses buildings with occupancies other than R-3, and Group R-2 constructed of Type VB construction, since they have been historically separated 5 ft from a lot line. Additionally these buildings will always be protected with sprinklers. The degree of openness provides fire protection benefits and the area will most likely include sprinkler protection unless the space is very tall.

The proposed code change treats outdoor areas under a building, for example outdoor dining in a restaurant part of which is indoors and part of which is under a larger second floor, similarly to parking garages and requires a fire separation distance of 10 ft for openings to not be limited when the structure has no surrounding wall adjacent to a lot line or imaginary line.

The IBC exempts exterior openings on open parking garages, that typically have a very limited or no surrounding exterior walls, from exterior wall opening limits in Table 705.8 when located at a fire separation distance of 10 feet or more.

No size limitation (area, depth) has been added to exempt attached structures with small depths to allow the Building Official flexibility in determining when such structures can be considered as projections if the area below is small enough to not be useable or pose a risk to buildings and structures on adjoining properties.

Most buildings of Type VB and IIB are exempt from exterior opening protection and wall protection when located at a fire separation distance of 10 ft per Table 602 footnote (g) and Section 705.8.1 exception 2. 10 ft appears to be a reasonable fire separation distance to address this issue.



Cost Impact: Will increase the cost of construction
The cost of construction may increase due to the need to enclose the attached structures. Fire resistance of the primary structural frame is required by Section 704.10 so increased fire resistance will not result. The code change will result in more uniform code application.

FS18-15 : 705.8.1-FATTAH5675

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that requiring a space to be enclosed by exterior walls simply because it is usable was unreasonable and could cause a more hazardous condition by not allowing the products of combustion to dissapate as effectively as leaving the space unenclosed. Further, the committee felt that this was a misapplication of the fire separation distance requirements and that previously approved FS17 was a better fix.

Assembly Motion: **As Submitted**
Online Vote Results: **Failed**
Support: 36.52% (126) Oppose: 63.48% (219)
Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

705.8.1 Allowable area of openings. The maximum area of unprotected and protected openings permitted in an *exterior wall* in any *story* of a building shall not exceed the percentages specified in Table 705.8.

Exceptions:

1. In other than Group H occupancies, unlimited unprotected openings are permitted in the first *story* above grade plane either:
    1.1. Where the wall faces a street and has a *fire separation distance* of more than 15 feet (4572 mm); or
    1.2. Where the wall faces an unoccupied space. The unoccupied space shall be on the same lot or dedicated for public use, shall be not less than 30 feet (9144 mm) in width and shall have access from a street by a posted fire lane in accordance with the *International Fire Code*.
2. Buildings whose exterior bearing walls, exterior nonbearing walls and exterior primary structural frame are not required to be fire-resistance rated shall be permitted to have unlimited unprotected openings.
3. In other than Group R-3 occupancies~~,~~ or Group R-2 occupancies constructed of Type VB construction, unlimited unprotected openings are permitted ~~for~~ to separate exterior useable areas located under portions of a building– above when– the~~ roof or floor~~ exterior wall of the story above– is located at a fire separation distance is 10 feet or greater.

Commenter's Reason: This public comment is submitted after consideration of feedback from both the committee and opponents at committee action hearings. Both the original code change and floor modification were not approved by the committee partially because of the committee's action on FS 17. Repeatedly the committee and some openness have said that the IBC does not require nor does it intend for occupancies to be separated from lot lines even though the IBC wants one building to protect a neighboring building from itself. One committee member that voted for disapproval expressed a concern that this code change forces the construction of an exterior wall which would reduce safety for occupants. The proposed code change addresses fire exposure to neighboring properties and the

IBC adequately addresses hazards to the occupants in the exposing building. The absence of an exterior wall should not be an absence of fire separation requirements when an occupancy is close to a lot line.

Additionally the definition approved in FS 11 can be read to consider the second story a projection when it is larger than the first story since it's floor projects beyond the recessed exterior wall on the first story.

This public comment is a fallback in the event that the public comment submitted in FS 16 is not approved. If FS 16 is approved it makes this code change moot unless the membership is interested in an option to address specific uses.

FS18-15

FS20-15
705.8.5

Proposed Change as Submitted

Proponent : Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

Revise as follows:

705.8.5 Vertical separation of openings. Openings in *exterior walls* in adjacent *stories* shall be separated vertically to protect against fire spread on the exterior of the buildings where the openings are within 5 feet (1524 mm) of each other horizontally and the opening in the lower *story* is not a protected opening with a *fire protection rating* of not less than $^{3}/_{4}$ hour. Such openings shall be separated vertically not less than 3 feet (914 mm) by spandrel girders, *exterior walls* or other similar assemblies that have a *fire-resistance rating* of not less than 1 hour, rated for exposure to fire from both sides, or by flame barriers that extend horizontally not less than 30 inches (762 mm) beyond the *exterior wall*. Flame barriers shall have a *fire-resistance rating* of not less than 1 hour. The unexposed surface temperature limitations specified in ASTM E 119 or UL 263 shall not apply to the flame barriers ~~or vertical separation~~ unless otherwise required by the provisions of this code.

Exceptions:

1. This section shall not apply to buildings that are three *stories* or less above *grade plane*.
2. This section shall not apply to buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
3. Open parking garages.

Reason: The existing provision indicates that openings in exterior walls shall be separated vertically not less than 3 feet (914 mm) by spandrel girders, exterior walls or other similar assemblies that have a fire-resistance rating of not less than 1 hour, rated for exposure to fire from both sides. However, the last sentence of 705.8.5 then waives the unexposed surface temperature limitations specified in ASTM E 119 or UL 263. While this may be reasonable for the flame barriers because they extend horizontally beyond the build face, it is not justified for spandrel panels, exterior walls, or other similar assemblies that are mounted vertically above openings in the fire compartment.That vertical portion of the curtain wall is often immediately adjacent to cumbustible materials such as window coverings, drapes and carpets.

Our understanding of exterior fires and their mechanism of spread in buildings has been researched and reported. Building geometry and exterior projections of the curtain wall or building structural elements can have a beneficial or negative effect on flame length extension and heat flux exposure to curtain wall elements above the fire compartment. Such condition can allow the unrestricted passage of flames and hot gases from a fire on a floor below into the floor above. The position and geometry of the opening relative to the expected flame extension is important in assessing the risk of a leap frog event. The requirement to provide a fire-resistance-rating should not be waived for the vertical separation between openings.

Fire spread in high rise buildings from floor to floor occurs if flames emerge and extend on the façade of the building to cause ignition in the floor above fire floor. Even though considerable effort has been exerted to address this issue, the relevant physics is still under study and has been poorly clarified. Key factors that impact a curtain wall's fire performance are being addressed by the new Draft ASTM Test Method for Determining the Fire Resistance of Building Perimeter Containment Systems Due to External Spread of Fire. Such a test Standard could eventually be useful to provide enhanced protection or evaluate a curtain wall assembly's potential performance when subject to uncontrolled heat/flame exposure.

Cost Impact: Will increase the cost of construction
The current Code text is contradictory. It requires an ASTM E119 or UL 723 fire resistance rating from both sides, but then waives one of the most critical aspects. This proposals creates the intended level of safety. There may be some impact on cost where spandrel panels do not meet the existing ASTM E119 temperature rise conditions. In many cases, where one or more layers of gypsum board is used on the interior surface, there may be no additional cost depending on the type of spandrel construction.

FS20-15 : 705.8.5-CRIMI4307

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The committee agreed that allowing temperature rise limitations to not apply to vertical separations as this is a different fire exposure condition than the flame barriers that project beyond the exterior wall. The concern is that the fire will be directly against the exterior wall, which would make temperature rise on the unexposed surface more critical. Although a test standard is under development to address the fire exposure of this condition, the committee believes that this change should be made now to address the temperature rise concern.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Disapprove.

Commenter's Reason: This code change is premature. The proponent even states that there is a draft standard being developed:
Until that document is complete we are preemptively creating our own standard that industry and designers don't have and are not able to incproprate into their designs and code officials will struggle to obtain the appropriate information to determine what is appropriate. With a complete standard the codes and the construction industry can effectively engage an appropriate solution to the perceived problem that this code change purports to address.

We have struggled in the past with incorporation of criteria that are developed to favor products by those that gain from these standards to the detrement of others. The codes shouldn't act on the direction a standard is taking until the standard is complete.

FS22-15
705.8.6

Proposed Change as Submitted

Proponent : Gary Lampella (gary.lampella@ci.redmond.or.us)

2015 International Building Code

Delete without substitution:

~~**705.8.6 Vertical exposure.** For buildings on the same lot, opening protectives having a *fire protection rating* of not less than $^3/_4$ hour shall be provided in every opening that is less than 15 feet (4572 mm) vertically above the roof of an adjacent building or structure based on assuming an imaginary line between them. The opening protectives are required where the *fire separation distance* between the imaginary line and the adjacent building or structure is less than 15 feet (4572 mm).~~

~~**Exceptions:**~~

1. ~~Opening protectives are not required where the roof assembly of the adjacent building or structure has a *fire-resistance rating* of not less than 1 hour for a minimum distance of 10 feet (3048 mm) from the *exterior wall* facing the imaginary line and the entire length and span of the supporting elements for the fire-resistance-rated roof assembly has a *fire-resistance rating* of not less than 1 hour.~~
2. ~~Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with Section 705.8.6.~~

Reason: When applying this section to buildings on the same lot with an imaginary line designed to determine fire separation distance, it adds additional requirements that are not required in an identical situation with a real property line between buildings and with the same identical physical arrangement. It makes absolutely no sense to apply different and more stringent requirements to two identical scenarios. Both scenarios, an imaginary line and a real property line, have identical requirements of Table 602 for fire resistance based on fire separation distance, Table 705.2 for projections, Section 705.5 for exterior walls based on fire separation distance, Section 705.8 for exterior wall openings, Section 705.8.4 for mixed openings and Table 705.8 for exterior wall openings based on fire separation distance. Then we arrive at Section 705.8.6, for vertical exposure. This is the section that creates the conflict between imaginary lines and real property lines.

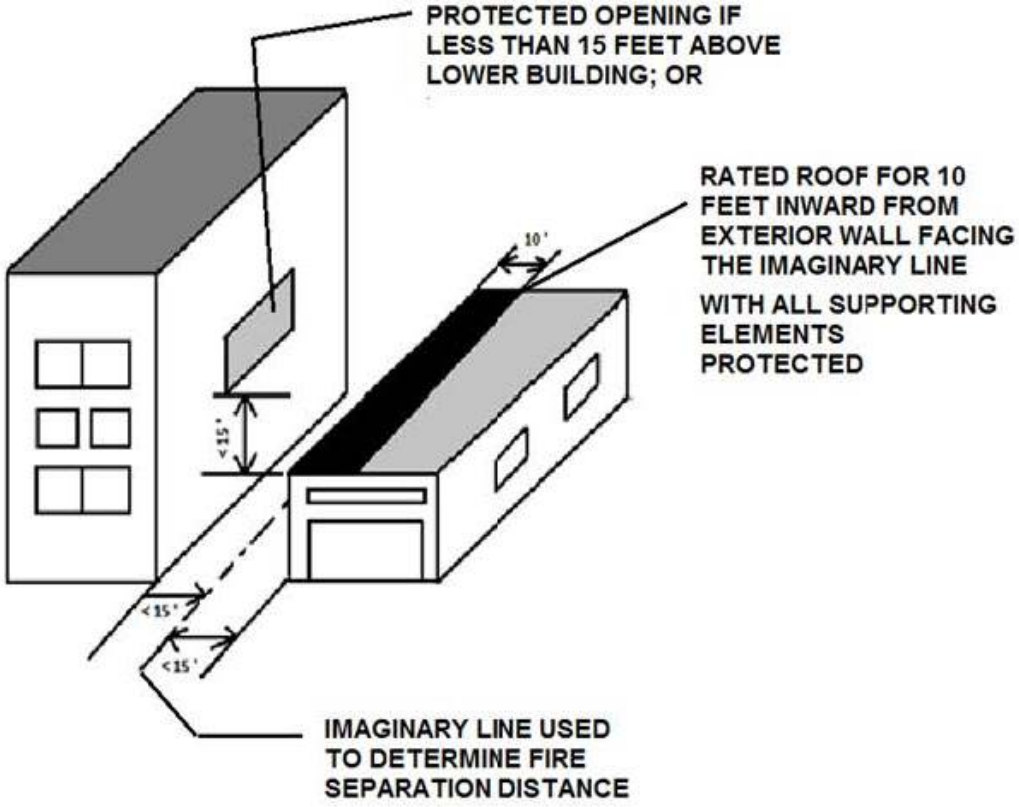


FIGURE 1

Section 705.8.6 currently requires either opening protectives or a rated roof only when you have two buildings on the same lot with an imaginary line between them. This is based on the ICC interpretation of this provision in the 2012 IBC.

Two additional and very substantial requirements are placed on two buildings on the same lot with an imaginary line to determine fire separation distance that are not applied to identical physical arrangements with real property lines. The code as written only addresses the fire separation distance of the lower building and has no verbiage for the building with the openings. Although there is an ICC interpretation

propriate for both fire-resistance-rated and nonfire-resistance-rated walls.

705.8.6 **Vertical exposure.** For buildings on the same lot, opening protectives having a *fire protection rating* of not less than ¾ hour shall be provided in every opening that is less than 15 feet (4572 mm) vertically above the roof of an adjacent building or structure based on assuming an imaginary line between them. The opening protectives are required where the *fire separation distance* between the imaginary line and the adjacent building or structure is less than 15 feet (4572 mm).

Exceptions:

1. Opening protectives are not required where the roof assembly of the adjacent building or structure has a *fire-resistance rating* of not less than 1 hour for a minimum distance of 10 feet (3048 mm) from the *exterior wall* facing the imaginary line and the entire length and span of the supporting elements for the fire-resistance-rated roof assembly has a *fire-resistance rating* of not less than 1 hour.
2. Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with Section 705.8.6.

Q: A covered mall building constructed in accordance with Section 402 is attached to a multistory anchor store. Is it the intent of Section 705.8.6 to require exterior opening protectives for the windows in the anchor store that are adjacent to and located above the roof of the covered mall building?

A: No. Although the anchor store is not considered part of the covered mall building, it is the intent of Section 402.4.2.2.1 to permit unprotected openings between the anchor store and the pedestrian area of the mall. It would be inconsistent to allow unprotected openings between the mall area and the anchor store and, at the same time, require exterior opening protectives in windows located in the anchor store above the roof of the covered mall building.

Q: Where Table 705.8 prohibits any openings in an exterior wall due to fire separation distance, is it the intent of Section 705.8.6 to permit openings in the exterior wall that is located above the roof of an adjacent building?

A: No. Section 705.8 regulates the maximum area of openings (protected and unprotected) in exterior walls. These limitations are applicable to each and every story of all exterior walls. The conditions addressed in Section 705.8.6 are also subject to the requirements of Section 705.8. Thus, the exterior wall of a building is required to comply with Section 705.8 for determining the maximum amount of openings permitted whether or not there is an adjoining building or adjacent structure with a lower roof height. Note b to Table 705.8 provides the cross-reference to Section 706.6.1 for exterior opening requirements above fire walls.

Q: When evaluating the opening protective requirements of Section 705.8.6, must the fire separation distances of both buildings be considered?

A: Yes. The hazard addressed in Section 705.8.6 is due to the fire exposure from an adjacent lower roof which is in close proximity to the exterior wall of the higher building. The requirements of this section are based on a 15-foot fire separation distance as defined in Section 702, whereas the requirements of previous editions of model codes were based on a 30-foot horizontal distance between adjacent buildings. The current requirements presume that the imaginary line or lot line is drawn equidistant between two adjacent buildings located no more than 30 feet apart.

The provisions of Section 705.8.6 are intended to be applied where the adjacent exterior walls of both buildings are required by Table 602 to be fire-resistance rated. This typically occurs where both buildings have a fire separation distance of 15 feet or less. The hazard addressed in Section 705.8.6 does not exist where one building is located at a fire separation distance of 15 feet or less and the adjoining building or adjacent structure is located at a fire separation distance of greater than 15 feet.

SECTION 706
FIRE WALLS

706.2 **Structural stability.** Fire walls shall have sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall for the duration of time indicated by the required *fire-resistance rating* or shall be constructed as double fire walls in accordance with NFPA 221.

Q: Are building elements, such as plumbing piping, HVAC ducts and fire sprinkler piping, that are permitted to penetrate a fire wall required to be designed for compliance with the provisions of Section 706.2 for structural stability?

A: Yes. A fire wall must remain wholly intact for the time duration specified. Building elements that are permitted to penetrate a fire wall must be designed and installed such that failure of any building element on either side of a fire wall will not cause premature failure of the fire wall, neither in its entirety or in part.

Q: Can a fire-resistance-rated floor/ceiling assembly be classified as a horizontal fire wall for the purpose of subdividing a multistory structure into separate buildings?

EXIBIT 1

The ICC interpretation determined that both buildings had to have a fire separation distance that required both buildings to have fire resistive walls due to fire separation distance. Although a published interpretation, the code still does not say that. It only addresses the fire separation of the lower building.

that "the current requirements presume that the imaginary line is equidistant between the two buildings" the code does not say that. It only refers to the adjacent (shorter building) having a fire separation distance if less then 15 feet. It also says "the provsisions of Section 705.8.6 are intended to be applied where the adjacent exterior walls of both buildings are required by Table 602 to be fire-resistive rated." Again, the code does not say that it only applies if the lower building has a fire separation distance of less than 15 feet. One could have an existing building that had up to 75% of openings in the exterior wall,

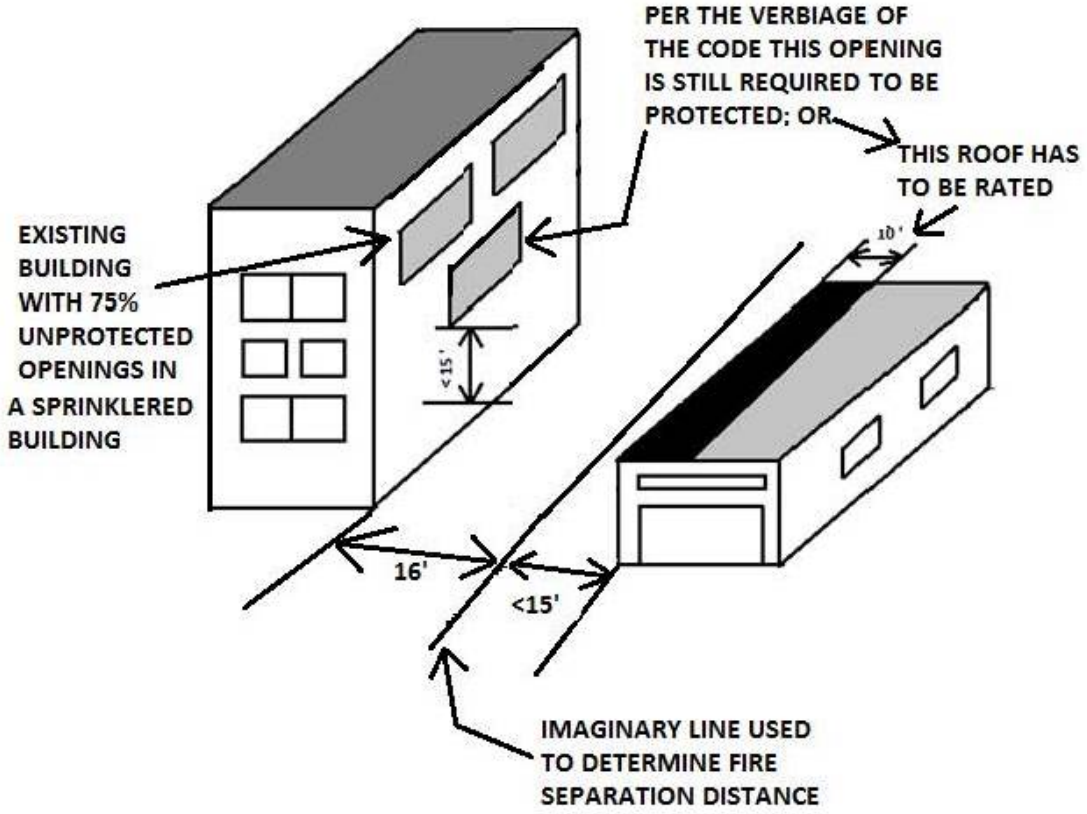


FIGURE 2

This imaginary line is placed such that the existing building can still have the 75% unprotected openings and not have to replace any glazing. Fifteen to less than 20 feet allows 75% of unprotected openings in a sprinklered building per Table 705.8.

The way the code reads in the last sentence of 705.8.6 only the shorter building has to have less than 15 feet to the imaginary line. So there is no code verbiage that regulates the fire separation distance of the taller building with the openings. Thus, the openings within 15 feet of the lower roof would still have to be protected although the building with the opening has a fire separation distance of more than 15 feet.

and another building was proposed to be constructed on the same lot 30 feet from it, one could place the imaginary line so the proposed building had a 14 foot fire separation distance and the taller one with the openings had a 16 foot fire sepration distance the openings could reamain unprotected in a non sprinklered building. But because of the code language, any opening that was less than 15 feet vertically above the adjacent roof would still be required to be protected because of the provision of measuring the fire separation distance for the lower building. Infact, you could have a much larger fire separation distance for the taller building but if the lower one was less than 15 feeet, you would still have to protect to openings within the 15 foot range due to the absence of any fire separation distance for the building with the openings. Replacing the imaginary line with an actual property line,

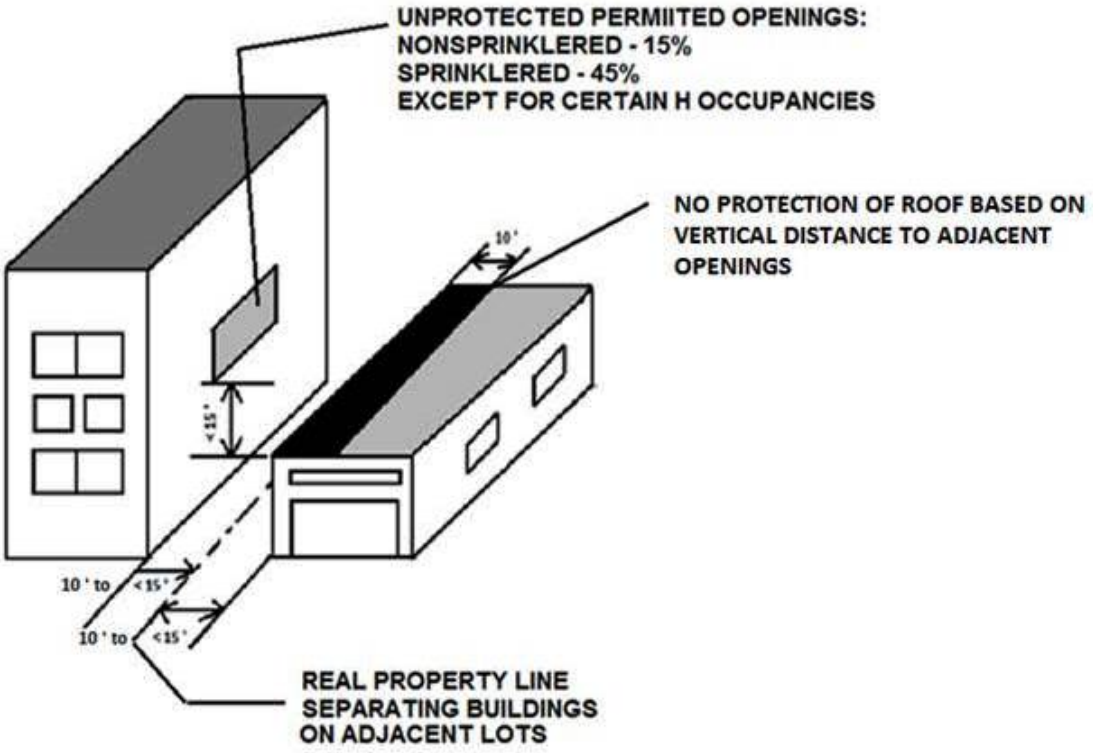


FIGURE 3

Now applying the same exact scenario to buildings with a real property line and you get virtually no requirements from Section 705.8.6 that are applicable to two buildings on the same lot with an imaginary line. You now can have a number of openings within the 15 foot vertical measurement without having to protect them or protecting the roof.

This is utilizing the 10 feet to < 15 feet in Table 705.8 as illustrating the difference in requirements between imaginary lnes and real property lines.

the buildings are now not subjected to the requirements of 705.8.6. With the two buildings with a real property line scenario you could have up to 15% of unprotected openings in a non sprinklered building and up to 45% in a sprinklered building without having to rate any of the openings in relation to the height above an adjacent roof. Furthermore, two adjacent building, each with a 5 to less than 10 foot fire separation distance to a real property line configured exactly like Figures 1 and 3 could have a wall with 10% unprotected openings without sprinklers and 25% unprotected openings when provided with sprinklers. We cannot find a similar provisions such as this anywhere in the code that regulates this type of arrangement. It is only applied when you have two buildings on the same lot with an imaginary line.

Statements from the Fire Safety committee in previous code hearings on this section were that you couldn't compare the two scenarios simply because with a property line you would have different owners and the buildings would not be constructed at the same time and how could you make two owners agree on which one does what, or how could you make an owner of an existing building retroactively modify a once code conforming building? I contend that you can relate them quite simply. If an existing building has less than a 15 foot fire separation distance to a property line, and another building is proposed on an adjacent lot with less than a 15 foot fire separation distance to the same property line, and there were one or more openings in one of the buildings that were less than 15 feet above the roof of the other building then Section 705.8.6 could be theoretically applied. The newer proposed building would have to have either a fire-rated roof or protected openings dependent

upon whether it was the higher building or the lower building.

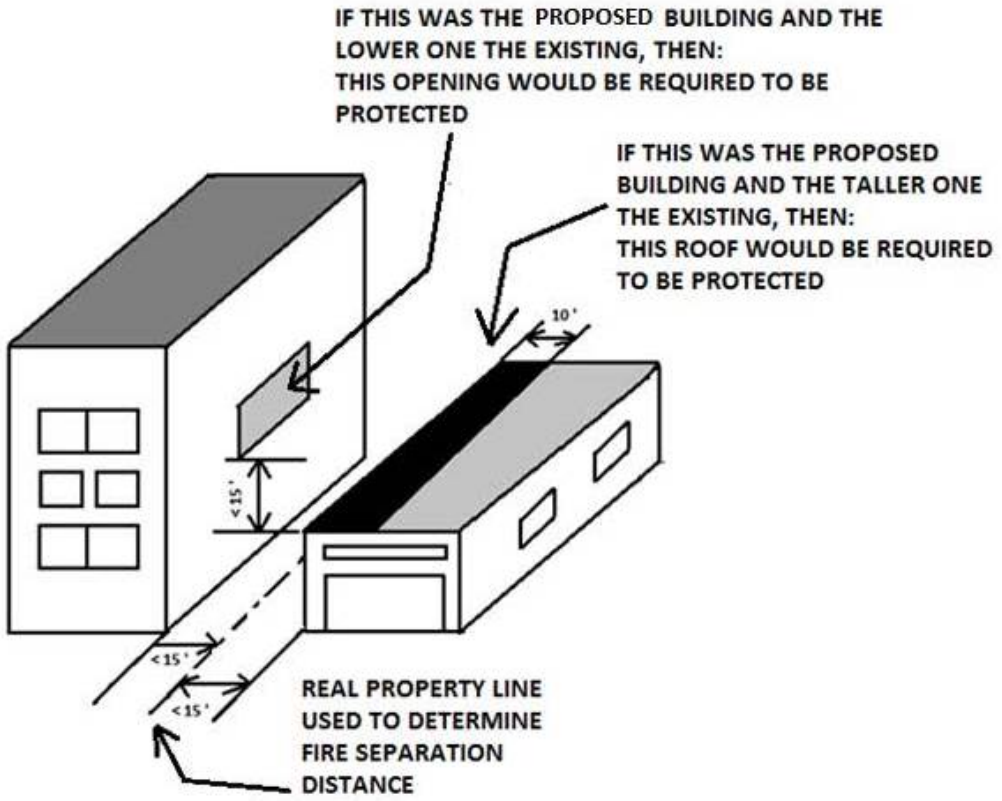


FIGURE 4

If a building was proposed to be constructed adjacent to another building on an adjacent lot, and the configuration of the two building met the provisions of Section 705.8.6, then you would apply the appropriate provision to the proposed building.

This puts no financial burden or threat of upgrading the existing building on the owner of that building. The newer building owner would be responsible to comply with 705.8.6. Of course this is merely conjecture and the code does not currently require that. But it is the exact same configuration and scenario Section 705.8.6 is addressing and is simply a way to show that you can compare the two scenarios – one with an imaginary line and one with a real property line.

So after analysis of situations with imaginary lines and real property lines, we can only presume that an imaginary line drastically changes physics and fire science to a degree that causes fire and smoke to behave very badly and function outside the realm of science – creating a hazard more severe than normal hazards associated with other structures located 30 feet from each other with a real property line between them.

Or maybe the surveying and platting of a legal and real property line also causes fire and smoke to work outside the physical realm of science and physics much like a black hole. Sucking oxygen, friction and fuel out of this magical 30 foot strip of soil and air, eradicating every known hazard and sending it millions of light years away for some unsuspecting unknown life form in a distance galaxy to deal with this very unpleasant array of toxic and harmful conditions created by an imaginary line.

It defies logic that fire and smoke would react differently with identical building locations, building shapes, and roof and opening locations due to having and imaginary line or a real property line. So why do we have different requirements for each?

If we want predictive and consistent codes, than this code section needs to be eliminated.

Cost Impact: Will not increase the cost of construction
This will not incerase to cost if approved. It is a deletion of a section that will no longer require fire-resistive assemblies.

FS22-15 : 705.8.6-LAMPELLA3376

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that removing these provisions would create less stringent requirements. Further, to address the differences in requirements between buildings on the same lot and buildings on adjacent lots it appears that FS23-15 does a better job. Lastly, this section should remain in the code as it directly tells the code user that fire exposure between buildings on the same lot needs to be considered.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Gary Lampella, City of Redmond, OR, representing Oregon Building Officials Association (gary.lampella@ci.redmond.or.us) requests Approve as Submitted.

Commenter's Reason: This section is a hold over from a previous legacy code and was intended for use with existing building. Applying this section to new construction only for buildings with an imaginary line and not for buildings with a real property line has no rational reason for doing so. Whether you have an imaginary line or a a real proiperty line does not alter the physics of fire spread and smoke, as one would be led to believe. Constructing a new building same lot with with an existing building that results in each having less then 15 feet of fire separation distance to the imaginary line, or constructing a new building with less than 15 feet of fire separation distance from a real property line with a building on tha adjacent lot with less then 15 feet of fire separaration distance from the same line, should be treated exactly the same. But the code does not do that. It only requires 2 buildings on the same lot to have a more restrictive requirement than those on adjacent lots. Onbe can only surmise that a real prperty line creates some sort of invisible safety feature that buildings with an imaginary line do not have. Fire and smoke behave exactly the same way between 2 buildings equidistance apart irregardless of what type of line separates them - a real property line, or an imaginary line.

THis section creates an inconsistency in the code for buildings situated exactly the same way - fire separation distance of less than 15 feet and openings within 15 feet vertically above an adjacent roof. Only the buildings with the imaginary line are required to conform to the provision of the code. There is no other requirement anywhere we cvan find in the code that is remotely similar to this one. It makes absolutely no logical sense to treat two situations differently based on an imaginary line and a real property line.

FS22-15

FS23-15

705.8.6.1 (New)

Proposed Change as Submitted

Proponent : Gary Lampella, City of Redmond, Oregon (gary.lampella@ci.redmond.or.us)

2015 International Building Code

Add new text as follows:

705.8.6.1 **Vertical exposure for buildings on adjacent lots** Where a building is proposed adjacent to an existing building on an adjacent lot and the resulting fire separation distance for both buildings is less than 15 feet (4572 mm), and one of the buildings has openings less than 15 feet (4572 mm) above the roof of the adjacent building, one of the following provisions shall apply.

1. If the proposed building has openings less than 15 feet (4572 mm) vertically above the roof of the existing adjacent building, opening protectives having a fire protection rating of not less than 3/4 hour shall be provided for those openings; or

2. If the existing building has openings less than 15 feet vertically above the roof of the proposed adjacent building, the proposed building shall be provided with a roof assembly having a fire-resistive rating of not less than 1 hour for a distance of 10 feet (3048 mm) from the exterior face of the wall facing the property line and the entire length and span of the supporting elements for the fire-resistive-rated roof assembly shall have a fire-resistive-rating of not less than 1 hour.

Reason: The purpose of this proposal is to eliminate a conflict and align it with Section 705.8.6. Having a requirement for roof and opening protection for two buildings on the same lot with an imaginary line between them and ignoring the same exact scenario for two building on seprate lots is not logical. We can only assume that placing an imaginary line between two buildings on the same lot creates a more severe hazard than two buildings on separate lots separated by a real property line but with identical configurations. This seems to us that smoke and fire behave differently with an imaginary line than it does with a real property line. Either the imaginary line defies normal physics, fire science and behaves badly because of the imaginary line, or maybe a real property line contains some magical characteristic that removes all potential hazards and negates the need for fire-resistve protection that is required with an imaginary line. Fire and smoke behave the same between two buildings regardless if they have a real or imaginary line between them. It only changes by outside agencies such as wind, additional accelerants or by human intervension - which can happen with any building configuration. Having code provisions to control vertical fire spread for only buildings on the same lot with a fire separations distance of less than 15 feet for each building and ignoring the same exact scenario with a real property line perplexes us. I have submiitted different variations of this proposal before the Fire Safety Committee numerous times without sucess. Feedback from this committee in previous code cycles on this section were that you couldn't compare the two scenarios simply because with a property line you would most likely have separate owners and the buildings would not be constructed at the same time, how could you make separate owners agree on which one does what, or how could you make an owner of an existing building retroactively modify a once code conforming building? I

think we have addressed those concerns with this new section to clearly define the proposed building owner as the responsible party. This would be consistent with opening protection due to fire separation distance measured to a property line. If the fire separation distance of the two buildings results in both buildings having a fire separation distance of less the 15 feet by placement of the new building, and the proposed building meets either of the two provisions, openings in the wall facing the property line less than 15 feet above the existing building on the adjacent lot, or the roof of the proposed building is at an elevation that reults in existing openings in the existing building being less than 15 feet above the new roof, only the proposed building would be subject to the fire-resistive requirements. The existing building would not be required to be retrofitted or upgraded in any manner and could remain as is. See Figure 1.

If our goal is to have predictable and consistent codes that don't conflict, then this code proposal is needed and necessary to meet that goal.

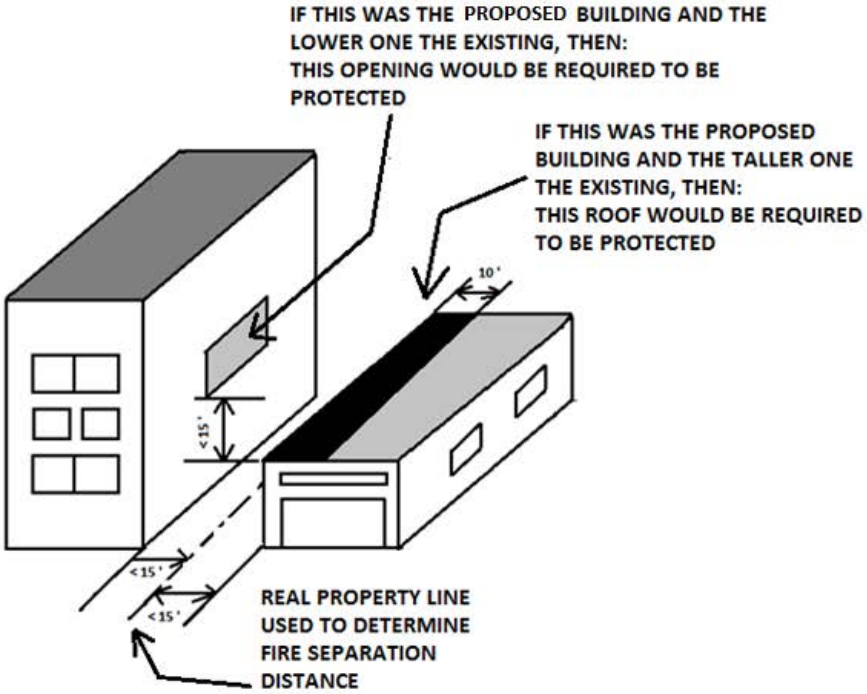


FIGURE 1

When the taller building is the proposed structure and the shorter the existing one, the opening depicted in the drawing would be required to have a fire-protection-rating of not less than ¾ hour. The existing lower building would require no fire-resistive construction for the roof.

When the shorter building is the proposed and the taller the existing building, then the roof would be required to be fire-resistive rated for 10 feet inward from the exterior wall and all supporting members rated. The taller existing building would be permitted to have unprotected openings.

Cost Impact: Will increase the cost of construction
The cost of costruction will increase only for projects that opt to construct buildings closer than 15 feet to a property line with another building on the adjacent lot also less than 15 feet from the propety line. We don't belive that this is common pratice so the cost in overall construction should be minimal

FS23-15 : 705.8.6.1 (New)-LAMPELLA3558

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that a new building should be designed in relation to the known lot lines without taking into account a building or structure on an adjacent lot, the conditions of which could change over time. Also, openings in the existing building may already be protected; this should be addressed in item #2. Further, enforceability could be difficult when dealing with a property, structure or property owner on a lot that is adjacent to the lot on which the new structure is permitted. Lastly, Section 705.8 should be referenced as some situations may require openings to be protected for more than ¾ hours.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Robert Davidson, Davidson Code Concepts, LLC, representing Self (rjd@davidsoncodeconcepts.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

705.8.6.1 Vertical exposure for buildings on adjacent lots Where a building is proposed adjacent to an existing building on an adjacent lot and the resulting fire separation distance for both buildings is less than 15 feet (4572 mm), and one of the buildings has openings less than 15 feet (4572 mm) above the roof of the adjacent building, one of the following provisions shall apply.

1. If the proposed building has openings less than 15 feet (4572 mm) vertically above the roof of the existing adjacent building, opening protectives having a fire protection rating of not less than 3/4 hour, or the fire protection rating required by Section 705.8 if greater, shall be provided for those openings; or

2. If the existing building has unprotected openings less than 15 feet vertically above the roof of the proposed adjacent building, the proposed building shall be provided with a roof assembly having a fire-resistive rating of not less than 1 hour for a distance of 10 feet (3048 mm) from the exterior face of the wall facing the property line and the entire length and span of the supporting elements for the fire-resistive-rated roof assembly shall have a fire-resistive-rating of not less than 1 hour.

Commenter's Reason: The committee heard related testimony on FS21-15, FS22-15 and FS23-15. The three proposals are related because they address the same fire protection issue, i.e., fire exposure to buildings of differing heights. The purpose of this proposal is to eliminate a conflict and align it with Section 705.8.6. Having a requirement for roof and opening protection for two buildings on the same lot with an imaginary line between them and ignoring the same exact scenario for two building on separate lots is not logical. The fire exposure hazard is the same.

During the discussion on FS22-15 the committee indicated that FS23-15 does a better job of addressing the anomaly. In their discussion of FS23-15 the committee felt that a new building should be designed in relation to the known lot lines without

taking into account a building or structure on an adjacent lot, the conditions of which could change over time. This would be correct when there is no existing building on the neighboring lot. You would simply apply the exterior wall fire protection requirements based upon Section 705. But in many cases there are existing buildings built under differing codes, with and withoutout existing openings, protected and unprotected. This proposal addresses those situations where you will have buildings of differing heights in the same manner as existing Section 705.8.6 which deals with two buildings on the same lot. It is not uncommon to see buildings with differing heights built directly up against a lot line in an urban environment.

The committee commented that, openings in the existing building may already be protected; this should be addressed in item #2. A modification has been added to recognize that the openings may already be protected.

The committee was concerned that enforceability could be difficult when dealing with a property, structure or property owner on a lot that is adjacent to the lot on which the new structure is permitted. This was dealing with knowledge of whether or not the existing building had protected openings. Either existing records can be reviewed or the existing building can be surveyed to check on the existing construction. This should not be an issue with a jurisidiction with viable construction and maintenance inspection programs. The information should already exist in the files. However, since the proposed fire protection provisions target the new building to be constructed, the default would be to assume the existing building openings are unprotected and construct accordingly.

Lastly, the committee indicated that Section 705.8 should be referenced as some situations may require openings to be protected for more than ¾ hours. A reference to Section 705.8 has been added for application if the opening protection requirements of Section 705.8 are higher than 3/4 hours.

FS23-15

FS26-15
705.11.1

Proposed Change as Submitted

Proponent : Galen Taylor, County of Los Angeles Fire Department, representing self (galentaylor@me.com)

2015 International Building Code

Revise as follows:

705.11.1 Parapet construction. Parapets shall have the same *fire-resistance rating* as that required for the supporting wall, and on any side adjacent to a roof surface, shall have noncombustible faces for the uppermost 18 inches (457 mm), including counterflashing and coping materials. The height of the parapet shall be not less than 30 inches (762 mm) and not more than 48 inches (1219 mm) above the point where the roof surface and the wall intersect. Where the roof slopes toward a parapet at a slope greater than two units vertical in 12 units horizontal (16.7-percent slope), the parapet shall extend to the same height as any portion of the roof within a *fire separation distance* where protection of wall openings is required, ~~but~~ in no case shall the height of the parapet be less than 30 inches (762 mm).

> **Exception:** Parapets shall not be limited to 48 inches (1219 mm) in height where approved by the fire ode official.

Reason: Firefighting operations typically require accessing the roof, from the exterior, to perform critical ventilation operations. Firefighters performing such operations may also need to rapidly retreat from their roof-top positions. Excessively high parapets present an immovable obstacle to firefighters when sudden changes in roof-top firefighting operations require an immediate evacuation. Excessively high parapets also prevent firefighters from shouting or signally for help should their hand-held radio stop working.
This proponent has seen building projects involving parapets up to nine feet high on all four sides. Planning Departments also are prone to imposing view-screen requirements at the edge of building roofs which present an equivalent barrier to roof-top access and egress. With the advent of roof-top gardens, the use of parapets as a screening tool will likely increase. However, since the building code is silent regarding maximum parapet heights, jurisdictional authorities are hard pressed to impose a maximum height limit. This proposal would impose a limit on parapets heights while still allowing a reasonable degree of flexability on a case by case basis.

Cost Impact: Will not increase the cost of construction
Since no additional construction materials are involved in limiting maximum parapet height there should be no additional costs imposed by this code amendment.

FS26-15 : 705.11.1-TAYLOR5108

Public Hearing Results

Committee Action: Approved as Modified

Modification:

705.11.1 Parapet construction. Parapets shall have the same fire-resistance rating as that required for the supporting wall,
and on any side adjacent to a roof surface, shall have noncombustible faces for the uppermost 18 inches (457 mm), including
counterflashing and coping materials. The height of the parapet shall be not less than 30 inches (762 mm) and not more than
48 inches (1219 mm) above the point where the roof surface and the wall intersect. Where the roof slopes toward a parapet at
a slope greater than two units vertical in 12 units horizontal (16.7-percent slope), the parapet shall extend to the same height
as any portion of the roof within a fire separation distance where protection of wall openings is required, but in no case shall
the height of the parapet be less than 30 inches (762 mm).

> **Exception:** Parapets shall not be limited to 48 inches (1219 mm) in height where approved by the ~~fire~~ code official.

Committee Reason: The committee agreed that a limitation on parapet heights was appropriate to facilitate firefighting operations. The modification clarifies that the code official can approve a higher parapet as this is purely a building issue.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Adria Reinertson, representing California Fire Chiefs Association (adriar@moval.org) requests Approve as Submitted.

Commenter's Reason: This proposal was approved by the committee as modified citing their agreement that a limitation on parapet heights was appropriate to facilitate firefighting operations. The committee then modified the proposal to remove the word fire changing the authority from the "fire code official" to the "code official" stating that this is purely a building issue. Fire Code Officials utilize and enforce the building code on a regular basis. This change flies in the face of the intent, to facilitate firefighting operations and protect our firefighters. The authority to allow higher parapets should belong to the fire code official, who has intimate knowledge of firefighting operations within their repective jurisdiction, and has the ability to evaluate the department's needs and make an informed decision on whether to allow a higher parapet.

Public Comment 2:

Proponent : Adolf Zubia, representing International Association of Fire Chiefs, Fire & Life Safety Section requests Approve as Submitted.

Commenter's Reason: The appropriate approving authority for parapet height is the fire code official.
The reason for limiting the parapet height has to do with firefighting operations on the roof. Typical firefighting operation consists of placing ladders to gain access to the rooftop. Firefighters do not carry ladders across the rooftop normally. When a parapet is of such height that the firefighters cannot get over it, the other side of the roof is inaccessible.

Rooftop firefighting operations are inherently dangerous with a fire below. Adding obstacles and insurmountable parapets exacerbates the situation. When a rooftop is starting to fail and the firefighters on the roof need to escape, tall parapets limit their escape routes.

Since the limitation on the parapet height is because of firefighting operations, it is appropriate for the fire code official to make the determination as to whether the 48" height can be exceeded.

Public Comment 3:

Proponent : Andrew Greer, representing g Colorado Chapter, International Code Council requests Disapprove.

Commenter's Reason: The code is supposed to be a minimum requirement; many jurisdictions across the country have zoning codes which require screening of rooftop equipment. Limiting the height of parapets eliminates design options to building owners and design professionals that otherwise would be available. This issue would come up all the time leaving the code official responsible for making the decision as whether it's appropriate or not. There are also other ways to design rooftops which could potentially create the same types of issues brought up in the proponent's reason statement that would not be addressed by this code change; also there are many fire departments which have policies that would prohibit accessing rooftops during an event. The requirement of parapet heights should be based on a risk assessment profile that balances the variables mentioned plus staffing levels, response times, apparatus types etc. This is a decision that needs to be made at a local level where they have an understanding of their risk profile, not by a one size fits all national mandate.

Public Comment 4:

Proponent : Barry Greive, Target Corporation, representing Target Corporation requests Disapprove.

Commenter's Reason: This proposal is not needed, there are many instances where a parapet needs to be higher than 48 inches.
The cost impact is falsely claimed to have no increase in the cost of construction. By not having the ability to raise even one side of a buildings parapet or portion of a buildings parapet can increase the cost of construction on a building by more than $60,000. Many jurisdictions require screening of rooftop equipment, having to screen them seperately is a hardship. This also decreases the archetectural design features availible.

This also doesn't address all types of roof types, if there is a mansard type roof with a well for the mechanical equipment, which is a common type of construction the same scenario exists with a higher parapet but thay situation is not addressed.

limiting the height of parapets is not a one size fits all solution and should be disaproved.

Public Comment 5:

Proponent : Jonathan Siu, representing City of Seattle Department of Planning & Developoment (jon.siu@seattle.gov) requests Disapprove.

Commenter's Reason: We believe the proposal does not add clarity, would be inconsistently applied, and conflicts with another section of the code as explained below, and therefore should be disapproved.

1. The requirement applies to all portions of the building. Many years ago, there was a popular trend where architects were designing parapets that mimicked gable ends of buildings, but were only on a portion of the front facade of the building. This proposed code change would limit those types of architectural features that would interfere with access/escape from only a portion of the roof perimeter.
2. Some years after the false gable trend, there was a trend toward providing false mansard roofs, with triangular trusses around the perimeter of the roof deck. The apices of the trusses extended above the roof deck, creating a well. This situation, while creating the same issues for access and escape, would not be covered by the proposed change.
3. While it is probably intended to address issues such as the false gables mentioned above, the exception is too vague. There are no criteria by which to judge whether the parapet height requirement can be waived, so result is likely to be either it will used so broadly as to render the original requirement useless, or it will be applied so strictly as to render the exception meaningless. Another possibility is that its application will be totally arbitrary, and designers will have no idea what to expect. No matter what, there will be an extreme lack of consistent interpretation and application of the requirement from jurisdiction to jurisdiction, and possibly even within a jurisdiction.
4. The proponent expresses concern that increased use of roof gardens will increase the use of tall parapets. We disagree that this will be the case--users of the roof gardens will want to be able to enjoy the views from the rooftops, and they are more likely to want lower barriers to the sight lines than higher.
5. The 48-inch limitation could conflict with Section 705.11.1, particulary if a building has a roof that with a steep slope, and the exterior wall is near the property line. That section requires a parapet to "extend to the same height as any portion of the

roof within a fire separation distance where protection of openings is required."
6. The proposal will lead to inconsistent application, as it does not distinguish parapets from equipment screens, wind screens, or guards--all of which could be greater than 48 inches.

FS26-15

FS27-15

706.1.1.1 (New)

Proposed Change as Submitted

Proponent : Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Add new text as follows:

706.1.1.1 Fire walls not required Fire walls are not required on lot lines dividing a building for ownership purposes where the aggregate height and area of the portions of the building located on both sides of the lot line do not exceed the maximum height and area requirements of this code. The code official shall be provided with copies of dedicated access easements and contractual agreements that permit the owner of the portion of the building located on either side of the lot line access to the other side for purposes of maintaining fire and life safety systems necessary for the operation of the building.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at:
http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc
Currently the only requirement for constructing a fire wall within the IBC is when a building exceeds the maximum height and area requirements of the code. This is reflected in Section 503.1 of the IBC and the user is pointed to Section 706 for the technical requirements applying to fire walls. At Section 706.1.1 the language states that if a wall is constructed on a lot line with the wall intended for use between two buildings it must be constructed as a fire wall. Two key issues are that the construction of a party wall is not mandated based upon the existence of a lot line; and, often a wall is built adjacent to a lot line, not on it, making this section moot in most cases.

This proposal is intended to recognize that it is increasingly common to have property subdivided with a lot line dividing a building for ownership purposes. this issue is addressed in Chapter 4 for malls where anchor stores have lot lines specific to the anchor store established for financial purposes along the wall that separates the mall from the anchor store. But this issue is not addressed for other types of buildings and as a result, designers, building owners and code officials are left to wrestle with the issue on a case by case basis.

The proposed language specifies that where a property line divides a building for ownership purposes, and the building portions on both sides of the line do not exceed the maximum height and area requirements of the code, a fire wall is not required to be constructed on the property line. This allowance is only permitted where copies of dedicated access easements and contractual agreements allowing for maintenance of required fire and life safety systems that straddle the separation wall be provided to the code official. This new section is intended to provide guidance to ensure consistency in application of the code to buildings divided by ownership lot lines.

Cost Impact: Will not increase the cost of construction
There will be a decrease in cost by providing for a systematic method of handling buildings that have a lot line bisecting them for ownership purposes, eliminating unnecessary alternative method applications, appeal processes and/or construction of walls not necessary for fire or life safety.

FS27-15 : 706.1.1.1 (New)-ZUBIA4764

Public Hearing Results

Committee Action: Approved as Modified

Modification:

706.1.1 Party walls. Any wall located on a lot line between adjacent buildings, which is used or adapted for joint service between the two buildings, shall be constructed as a fire wall in accordance with Section 706. Party walls shall be constructed without openings and shall create separate buildings.

Exceptions:

1. Openings in a party wall separating an anchor building and a mall shall be in accordance with Section 402.4.2.2.1.

2. Fire walls are not required on lot lines dividing a building for ownership purposes where the aggregate height and area of the portions of the building located on both sides of the lot line do not exceed the maximum height and area requirements of this code. The code official shall be provided with copies of dedicated access easements and contractual agreements that permit the owner of the portion of the building located on either side of the lot line access to the other side for purposes of maintaining fire and life safety systems necessary for the operation of the building for review and approval.

~~**706.1.1.1 Fire walls not required.** Fire walls are not required on lot lines dividing a building for ownership purposes where the aggregate height and area of the portions of the building located on both sides of the lot line do not exceed the maximum height and area requirements of this code. The code official shall be provided with copies of dedicated access easements and contractual agreements that permit the owner of the portion of the building located on either side of the lot line access to the other side for purposes~~

~~of maintaining fire and life safety systems necessary for the operation of the building.~~

Committee Reason: The committee agreed that with the modifications this proposal would give the code official and designer the necessary minimum requirements to deal with the issue of having property subdivided with a lot line dividing a building for ownership purposes. Contractural agreements between building owners are appropriate documentation to be submitted to the code official for review, approval and bulidng department records. The modification appropriately places these requirements in the exceptions and requires the code official to reivew and approve the documentation.

Assembly Motion: **Disapprove**
Online Vote Results: **Successful**
Support: 54.04% (214) Oppose: 45.96% (182)
Assembly Action : **Disapproved**

Individual Consideration Agenda

Public Comment 1:

Proponent : Barry Greive, representing Target Corporation (barry.greive@target.com) requests Approve as Modified by Committee.

Commenter's Reason: The Fire CAC and the committee got this one right, there is no safety hazard with having the property line when the building can already be constructed of a larger size. Following the allowable area sizes in the code is an adequate safety factor. Having buildings cross property lines in certain circumstances is a common practice and widely accepted already. Adding this language to the code is a good clarification to the code user and AHJ.

Public Comment 2:

Proponent : Amy Murdock, Code Consultants, Inc., representing Code Consultants, Incorporated (amym@codeconsultants.com) requests Approve as Modified by Committee.

Commenter's Reason: This public comment provides full support of Code Change F-27 as approved by the Committee.
The proposed text addresses an issue that is a constant battle in the mixed use industry and the shopping center industry. The code text over the years has slowly began to address this matter and providing this clear statement allows for clarity in the matter of "internal" lot lines established for the purpose of realestate ownership, responsibility, and tax reasonings.

In the 2015 IBC, the exception to Section 706.1.1, already recognizes openings in a party wall separating an anchor building and a mall. Therefore, the code already addresses the allowance of a property line between an anchor building and a mall building within a covered/open mall building. The IBC Commentary text to this excpetion states:

"The exception to allow openings is important since many anchor stores are actually owned by the major department store, while the mall is owned by a separate entity. The fact that there is a real property line at the separation walls between an anchor and a mall means that technically ther eis a party wall, but openings are normally

present and a necessary function of the mall and anchor store."

This code exception was approved by the Commitee in Code Change FS-22-07/08, Part I-IBC Fire Safety. The Committee Reason stated: "The committee agreed that based on the unique situation regarding ownership of anchor buildings in typical malls this exception was appropriate to include. Further, the modification appropriately clarifies that the separation requirements are intended to address the pedestrian way within the mall building."

Further to this, the IBC Commentary text to Section 402.7.3 states:

"A growing trend in the development of covered mall and anchor buildings is the desire of the operators of the businesses in the anchor buidling to own the property and the buidling of the anchor building. The orignial intent of the covered mall provisions was that this would apply to one property under the control of one owner. Therefore, the complex simply becomes a group of separate buidlings, which eliminates the application of these provisions to the complex. Application of these mall provisions to a situation where the mall and anchor buildings are separate properties would be problematic, requiring special legal and technical considerations and treatement by the authority having jurisdiction."

The proposed code change FS-27 provides clarity to the covered mall conditions and alleviates the discussions pertaining to such property lines with each individual jurisdiction around the country.

The proposed code change F-27 addresses "internal" property lines within all developments. Mixed-use developments are more and more common which have very similar conditions to that of mall and anchor buildings. Unfortunately, condominium agreements are not as common as they used to be. For this reason, Code Change F-27 is important to continue as Approved by the Committee.

Bibliography: 2015 IBC; International Code Council; 2015; Page 124
2012 IBC Code and Commentary Volume 1; International Code Council; 2012; Section 706.1.1

2007/2008 IBC code change documentation

Public Comment 3:

Proponent : Assembly Action requests Disapprove.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Disapprove was successful by a vote of 54.04% (214) to 45.96% (182) by eligible members online during the period of May 14 - May 28, 2015.

Public Comment 4:

Proponent : Stephen Skalko, Stephen V. Skalko, P.E. & Associates, LLC, representing Masonry Alliance for Codes and Standards requests Disapprove.

Commenter's Reason: This code change is fatally flawed and can significantly reduce the fire safety objective of the building code to minimize the spread of fire between two buildings on separately owned properties. The following summarizes some of the issues in the proposal:

1. The proposed code language gives no guidance whatsoever on the specific details that the code official should look for in the dedicated access easement and contractual agreements other than permitting each owner access on the other's property for "*maintaining fire and life safety systems necessary for the operation of the building for review and approval*". Is this access permitted to be limited to certain times of day? Do the agreements insure access to all parts of the other owner's building space. For example, if the building is fully sprinklered, will each owner be able inspect all parts of the other owners building space to verify sprinkler heads are not blocked or have been removed. Or is access permitted to be limited to specific parts of the building like the location of the sprinkler system riser?

2. Which fire and life safety systems do the agreements apply to? The language says "*necessary for the operation of the building for review and approval*" Is it just sprinkler protection? Does it include a fire alarms system? What about means of egress systems.

3. What if the fire and life safety systems included with the initial permit approval are not maintained fully functional? Does the code official seek enforcement action jointly against the two owners, or just the owner whose side has the deficiencies? If the fire and life safety system deficiencies are serious and require the building(s) to be vacated should the contractual agreement have provisions specifying this action?

4. The proposal allows a party wall to jointly be used between two building owners without being constructed as a fire wall. What is the fire resistance rating of this wall required to be? Does the wall need meet the requirements for a single exterior wall at a property line with zero fire separation distance? Per Table 602 most occupancies would be required to have an exterior wall with a fire resistance rating of at least one (1) hour. Since there are two owners should the party wall have 2-hours of fire resistance, which is what would be required for separate exterior walls with zero fire separation distance? Or is a one hour fire resistance rating permitted for the party wall? If one hour is permitted then this is a reduction in the fire safety requirements of the code.

The questions raised above make clear there are many criteria and parameters that need to be considered if such a concept as dedicated access easements and contractual agreements are used to document approval of a permit for building projects such as these. It should not be codified within the IBC. These details will vary from project to project and need to be decided on a case by case basis. This approach needs to be left to the local authority having jurisdiction to decide all the pertinent requirements based on Section 104.11, Alternate Materials, Design and Methods of Construction.

Recommend DISAPPROVAL of FS 27-15.

FS27-15

FS28-15
706.2

Proposed Change as Submitted

Proponent : Edwin Huston, representing NCSEA Code Advisory Committee (huston@smithhustoninc.com)

2015 International Building Code

Revise as follows:

706.2 Structural stability. Fire walls shall be designed and constructed to allow collapse of the structure on either side without collapse of the wall under fire conditions. Fire walls designed and constructed in accordance with NFPA 221 shall be deemed to comply with this section.

Exception: Modify NFPA 221, Section 4.2 to read as follows:

4.2 Design Loads. All walls and their support shall be designed for loads in accordance with IBC Chapter 16, and to withstand a minimum uniform load, Ak, of 8 lbs/ft2 (0.38 kPa) from either direction applied perpendicular to the face of the wall utilizing the load combinations for extraordinary events ASCE 7, Section 2.5.

Reason: The loading requirements for firewalls in NFPA 221 – 15 are based on Allowable Stress Design level loads. They need to be revised to coordinate with the current strength level loading of ASCE 7 and to clarify how to combine them with other loads. The 8 psf is the existing 5 psf load from 1607.14 multiplied by a load factor of 1.6 to increase it to a Strength Design load in accordance with ASCE 7 Section 2.5.

Cost Impact: Will not increase the cost of construction
This change clarifies the design loads for structural stability of the fire wall and does not add new requirements which would increase the cost of construction.

FS28-15 : 706.2-HUSTON5246

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that the proposed changes to the NFPA standard should be processed through the NFPA standards process. Further, it appears there will be a cost impact contrary to what the proponent indicated.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov); Jonathan Siu, City of Seattle Department of Planning & Development,

representing City of Seattle Department of Planning & Development (jon.siu@seattle.gov) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

706.2 Structural stability. Fire walls shall be designed and constructed to allow collapse of the structure on either side without collapse of the wall under fire conditions. Fire walls designed and constructed in accordance with NFPA 221 and Section 1607.14.2 shall be deemed to comply with this section.

~~**Exception:** Modify NFPA 221, Section 4.2 to read as follows:~~

~~4.2 Design Loads. All walls and their support shall be designed for loads in accordance with IBC Chapter 16, and to withstand a minimum uniform load, Ak, of 8 lbs/ft2 (0.38 kPa) from either direction applied perpendicular to the face of the wall utilizing the load combinations for extraordinary events ASCE 7, Section 2.5.~~

1607.14.2 Fire Walls Fire walls and their supports shall be designed in accordance with this chapter. In addition, where fire walls are designed in accordance with NFPA 221, they shall be designed to withstand a minimum out-of-plane Allowable Stress Design load of 5 lbs/ft^2, applied from either direction. A minimum uniform Strength Design load, A_k, of 8 lbs/ft^2 (0.38 kPa), in conjunction with the load combinations for extraordinary events in ASCE 7, is permitted to be used for design.

Commenter's Reason: This is a necessary code change for consistency in the design of fire walls for structural loads.
This public comment modifies the original proposal first by moving the requirement into Chapter 16 (leaving a cross reference in Section 706.2), where the other structural loads are defined. The engineers who are going to be required to design these walls for structural loading will be unlikely to find the design criteria in Chapter 7--these engineers live in Chapters 16 through 23.

Second, the public comment clarifies that the 5 psf out-of-plane load (required in Section 4.2 of NFPA 221) is Allowable Stress loading. The second sentence in the new Section 1607.14.2 then gives guidance to the design engineer what to use for Strength Design loading (which is what the vast majority of the loads in the code are calibrated to) and what load combinations to use in ASCE 7. **This in no way conflicts with or changes the requirements in NFPA 221**--it is merely a conversion from one type of loading (Allowable Stress) to another (Strength Design), and brings consistency in application for code officials and design engineers. With this proposal and public comment, the design requirements in the IBC, NFPA 221, and ASCE 7 will all be coordinated. Without this code change, even if an engineer or code official were to find the reference to NFPA 221 and the appropriate section in that standard, there is no guidance in any of the three documents as to what kind of load it is (allowable stress or strength design), or what load combinations to use.

In response to the Committee's statement published in the Report of the Committee Action Hearings regarding the cost of construction, buildings incorporating fire walls tend to be large buildings whose structures are designed by an engineer. The additional cost of designing the fire walls for this load is not significant.

FS28-15

FS29-15
706.2

Proposed Change as Submitted

Proponent : Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

706.2 Structural stability. Fire walls shall be designed and constructed to allow collapse of the structure on either side without collapse of the wall under fire conditions. Fire walls designed and constructed in accordance with NFPA 221 shall be deemed to comply with this section.

> **Exception:** Where double fire walls are used in accordance with NFPA 221, floor and roof sheathing not exceeding 3/4 inch (19.05 mm) thickness shall be permitted to be continuous through the wall assemblies of light frame construction.

Reason: There is widely accepted interpretation by many building departments and structural engineers that the roof and floor diaphragms must be continuous to properly perform its function. The sheathing which comprises these diaphragms in light frame construction is generally wood structural panels between 7/16 inches to 23/32 inches thickness. These panels represent a very small risk of causing failure of the wall on the unaffected side of a double fire wall assembly. The benefit of performing the seismic function as a diaphragm is generally regarded as well worth any very small risk caused by fire exposure from one side of a double fire wall.
The following link is to a Structural Engineers of Southern California recommendation to carry the floor sheathing through these fire walls.

http://www.icclabc.org/uploads/Opinion_from_SEAOSC_on_Firewall_Final.pdf

Cost Impact: Will not increase the cost of construction
This code change does not create a new requirement. It allows an additional option for compliance that is not required.

FS29-15 : 706.2-MAIEL5795

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on a lack of data to substantiate the floor or roof sheathing being continuous through the fire wall. Also, it is not understood how structural stability will be achieved under loading and fire conditions.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

706.2 Structural stability. Fire walls shall be designed and constructed to allow collapse of the structure on either side without collapse of the wall under fire conditions. Fire walls designed and constructed in accordance with NFPA 221 shall be deemed to comply with this section.

> **Exception:** In SDC D through F, where ~~Where~~ double fire walls are used in accordance with NFPA 221, floor and roof sheathing not exceeding 3/4 inch (19.05 mm) thickness shall be permitted to be continuous through the wall assemblies of light frame construction.

Commenter's Reason: There is widely accepted interpretation by many building departments and structural engineers that the roof and floor diaphragms must be continuous to properly perform its function. The sheathing which comprises these diaphragms in light frame construction is generally wood structural panels between 7/16 inches to 23/32 inches thickness. These panels represent a very smallrisk of causing failure of the wall on the unaffected side of a double fire wall assembly. The benefit of performing the seismic function as a diaphragm is generally regarded as well worth any very smallrisk caused by fire exposure from one side of a double fire wall. The following link is to a Structural Engineers of Southern California recommendation to carry the floor sheathing through these fire walls. http://www.icclabc.org/uploads/Opinion_from_SEAOSC_on_Firewall_Final.pdf

FS29-15

FS30-15
706.3

Proposed Change as Submitted

Proponent : Sam Francis, American Wood Council, representing American Wood Council (sfrancis@awc.org)

2015 International Building Code

Revise as follows:

706.3 Materials. *Fire walls* shall be constructed of any of the following materials*:*

1. Fire walls in buildings of Type I or Type II construction shall be of any approved noncombustible materials.

   ~~**Exception:** Buildings~~

2. Fire walls in buildings of Type III or Type IV construction shall be of any approved noncombustible materials or of cross-laminated timber protected by a layer of 5/8 inch Type X gypsum wallboard
3. Fire walls in buildings of Type V construction shall be of any approved material.

Reason: This proposal would permit cross-laminated timber fire walls to be used in Types III and IV construction in lieu of noncombustible materials. CLT is a prefabricated engineered wood product consisting of not less than three layers of solid-sawn lumber or structural composite lumber where the adjacent layers are cross oriented and bonded with structural adhesive toform a solid wood element. These solid wood elements can easily achieve a high fire resistance rating and have inherent structural advantages in fire conditions, when protected and rated appropriately. CLT has been shown by fire testing to perform well and will offer flexibility and practicality of design.

Cost Impact: Will not increase the cost of construction
there would be a decrease in construction costs with this proposal. Fire Walls could be constructed of the same material as the exterior walls utilizing methods and materials less expensive than noncombustible walls and with savings on labor as well. Fire tests conducted on this material has shown it to perform very well under fire conditions.

FS30-15 : 706.3-FRANCIS5269

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on a lack of data to substantiate cross-laminated timber protected with gypsum wallboard was equivalent to noncombustible material. Further, it is not clear that the gypsumboard needs to completely encapsulate the cross-laminated timber members.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Sam Francis, representing American Wood Council (sfrancis@awc.org) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

706.3 Materials. *Fire walls* shall be of any *approved* noncombustible materials.

> ~~**Exception**~~ **Exceptions:** ~~Buildings~~
> 1. Fire walls of combustible materials shall be permitted in buildings of Type V construction.
> 2. Fire walls of Cross Laminated Timber (CLT) shall be permitted in buildings of Type IV construction. The CLT shall have the fire resistance rating required in Table 706.4. In addition, the CLT shall be protected by two layers of 5/8 in. Type X gypsum board on each side.

Commenter's Reason: The 2015 IBC permits CLT in Type IV construction in exterior walls. Those walls have a fire resistance rating requirement of 2 hours. CLT has been shown to achieve this rating while bearing the full design load of the structure. Since protected CLT may be substituted for noncombustible construction in the exterior wall, it makes sense that it should be permitted to separate such buildings as a fire wall. But to add to the ability of the wall to resist the insult of fire exposure, this proposal further requires the CLT to be protected by two layers of 5/8-in. Type X gypsum board. This has been shown to be a robust assembly capable of performing the functions of a fire wall. For more information on these fire tests, on our other public comments, and more information on CLT, visit the following website: http://www.awc.org/Code-Officials/2015-IBC-Code-Changes/.

FS30-15

FS32-15
706.5.1

Proposed Change as Submitted

Proponent : Stephen Thomas, representing Colorado Chapter (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

706.5.1 Exterior walls. Where ~~the~~ a *fire wall* intersects an *exterior* ~~*walls*~~ *wall*, the *fire-resistance rating* and opening protection of the *exterior walls* shall comply with one of the following:

1. The *exterior walls* on both sides of the *fire wall* shall have a 1-hour *fire-resistance rating* with $^{3}/_{4}$-hour ~~protection where~~ opening ~~protection is required by Section 705.8~~ protectives. The *fire-resistance rating* of the *exterior wall* shall extend not less than 4 feet (1220 mm) on each side of the intersection of the *fire wall* to *exterior wall*. The maximum area of protected openings located in the 4-foot (1220 mm) exterior wall segments shall not exceed 15 percent of the wall segment in any story. *Exterior wall* intersections at *fire walls* that form an angle equal to or greater than 180 degrees (3.14 rad) do not need *exterior wall* protection.
2. Buildings or spaces on both sides of the intersecting *fire wall* shall assume to have an imaginary *lot line* at the *fire wall* and extending beyond the exterior of the *fire wall*. The location of the assumed line in relation to the *exterior walls* and the *fire wall* shall be such that the *exterior wall* and opening protection meet the requirements set forth in Sections 705.5 and 705.8. Such protection is not required for *exterior walls* terminating at *fire walls* that form an angle equal to or greater than 180 degrees (3.14 rad).

Reason: The current language in the code is confusing regarding the exterior openings on each side of a fire wall terminating at the exterior wall. It references required protected openings in Section 705.8. Table 705.8 limits the area of unprotected and protected openings based on fire separation distance. It does not "require" protected openings anywhere. We have set a limitation of 15% of the area of the protected wall to limit the amount of openings. The 15% is based on the amount of protected openings permitted in Table 705.8 for a fire separation distance of 3-5 feet. We have also done some minor editorial revisions to make the section read better.

Cost Impact: Will not increase the cost of construction
This change is a clarification of the code language. It will not affect the cost of construction.

FS32-15 : 706.5.1-THOMAS4434

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt the proposed revisions were confusing and unnecessary. Further it is unclear if the 15 percent allowance is in addition to the maximum allowable openings in Table 705.8. The committee felt this should not be additive.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Masoud Sabounchi, representing ACE Inc. (masoud@acecode.com) requests Approve as Submitted.

Commenter's Reason: Section 706.5.1 offers two options. One is protection of the exterior wall for 4 ft on each side of the fire wall and one is selection of an imaginary lot line and protection of the exterior walls and openings based on proximity of the exterior walls to this imaginary lot line. As such reference to protection of openings in the exterior wall in option one would pertain to the actual property line. These property lines may have a fire separation distance of 20 ft, 30 ft, and so on from the 4 ft section of the fire resistance rated exterior wall. Option one does not require an imaginary lot line to be implemented. As such the intent of the code to prevent fire migration from one building to the other in the 4 ft protected regions is not presently conveyed and the proposed change correctly addresses this issue by limiting area of the opening and requiring protected openings within the 4 ft wall section.

Public Comment 2:

Proponent : Stephen Thomas, Colorado Code Consulting, LLC, representing Colorado Chapter ICC (sthomas@coloradocode.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

706.5.1 Exterior walls. Where a *fire wall* intersects an *exterior wall*, the *fire-resistance rating* and opening protection of the *exterior walls* shall comply with one of the following:

1. The *exterior walls* on both sides of the *fire wall* shall have a 1-hour *fire-resistance rating* with $^{3}/_{4}$-hour opening protectives. The *fire-resistance rating* of the *exterior wall* shall extend not less than 4 feet (1220 mm) on each side of the intersection of the *fire wall* to *exterior wall*. ~~The maximum area of protected openings located in the 4-foot (1220 mm) exterior wall segments shall not exceed 15 percent of the wall segment in any story.~~ *Exterior wall* intersections at *fire walls* that form an angle equal to or greater than 180 degrees (3.14 rad) do not need *exterior wall* protection.
2. Buildings or spaces on both sides of the intersecting *fire wall* shall assume to have an imaginary *lot line* at the *fire wall* and extending beyond the exterior of the *fire wall*. The location of the assumed line in relation to the *exterior walls* and the *fire wall*

shall be such that the *exterior wall* and opening protection meet the requirements set forth in Sections 705.5 and 705.8. Such protection is not required for *exterior walls* terminating at *fire walls* that form an angle equal to or greater than 180 degrees (3.14 rad).

Commenter's Reason: This public comment removes the limitation of openings within the one-hour exterior wall on each side of a fire wall when the exterior walls are within 180 degrees of each other. The way the current language in the IBC is written, you could have the entire exterior wall constructed of unprotected openings such as a store front window system. This would allow the spread of fire from building to building around the exterior wall. That is not the intent of this section. It is intended to restrict the spread of fire around the fire wall when the exterior walls are within 108 degrees of each other. Our public comment address the testimony at the committee hearing that our 15% limitation was too restrictive. This revision would allow any size opening in the exterior wall. However, the openings would need to be a minimum of 3/4 hour opening protectives. We believe that this would be a compromise to what was discussed at the hearings.
We also believe that this addresses the committee's comment that our change was confusing. We felt that the existing language was confusing and that is why we made the proposed change. By eliminating the reference to Table 705.8 and just stating that the openings in the exterior walls are required to be protected, we believe it makes the language much more clear.

FS32-15

FS34-15 Part II

707.9, 707.10 (New), 715.4 (New), 715.4.1 (New), Chapter 35

Proposed Change as Submitted

Proponent : Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

NOTE: PART I AND III DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART I AND 3 ARE REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART II.

2015 International Building Code

Revise as follows:

707.9 ~~Voids~~ Joints at intersections. The ~~voids created~~ joints at the intersection of a *fire barrier* and ~~a nonfire-resistance-rated roof assembly or~~ the underside of a nonfire-resistance-rated ~~exterior wall assembly~~ sheathing, slab or deck above shall be filled. An approved material or system shall be used to fill the ~~void~~ joint, and shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

Add new text as follows:

707.10 Joints at intersections of fire barriers and nonfire-resistance-rated exterior walls The joints at the intersection of a fire barrier and a nonfire-resistance-rated exterior wall assembly shall be filled. An approved material or system shall be used to fill the joint, and it shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

715.4 Joints between fire barriers and nonfire-resistance-rated roofs Where required elsewhere in this code,joints at the intersection of fire barriers and the underside of a nonfire-resistance-rated roof sheathing, slab or deck above shall be protected by an approved continuity head-of-wall joint system installed as tested in accordance with ASTM E 2837 to provide a F rating for a time period not less than the required fire-resistance rating of the wall assembly in which it is installed.

715.4.1 Installation Continuity head-of-wall joint systems shall be securely installed in or over the joint for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

Add new standard(s) as follows:
ASTM E 2837-13 Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies

Reason: The 2012 and later editions of the International Building Code have a provision whereby the voids created at the intersection of a fire barrier and the underside of a nonfire-resistance-rated roof sheathing, slab or deck above shall be filled with an approved material or system. While this language gives the code official the ability to accept some matching tested system, it does not acknowledge the existence of a new fire test standard and tested systems that specifically addresses the fire performance of these joints. This proposal then recognizes the existence of the new Standard ASTM E 2837, entitled "Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies", along with the tested systems. Since there are a limited number of published systems at this time, the use of system is being proposed as an option to the current allowance of an approved material or system. If desired, at some later date, when more tested systems are available, the code language can be revised once again to mandated tested systems in much the same way systems tested to ASTM E 1966 or UL 2079 are mandated for rated-to-rated construction.

Cost Impact: Will not increase the cost of construction
This code change will not increase the cost of construction as it does not mandate a tested system. In cases where a tested system would be the option chosen, the cost of construction will vary. In some cases, it may be decreased, due to the time saved (and therefore expense saved) by not needing to engineer and get approval for a custom-designed solution.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E2837, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS34-15 Part II : 707.9-CRIMI4305

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on a lack of data to substantiate the need for such a system. Further, the committee felt that the installation of these systems would increase the cost of construction contrary to what the proponent indicated.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Vincent Sagan, Thomas Associates, Inc., representing Metal Building Manufacturers Association (vsagan@mbma.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

707.9 Joints at intersections of fire barriers and nonfire resistance rated roofs. The joints created at the intersection of a *fire barrier* and the

underside of ~~a nonfire-resistance-rated~~ nonfire-resistance-rated roof sheathing, roof slab, or roof deck above shall be filled by one of the following:

1. An approved material or system shall be used to fill the joint, and shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

2. A head-of-wall joint system installed as tested in accordance with ASTM E 2837. The head-of-wall joint system shall have a F rating / T rating of not less than the required fire resistance rating of the vertical fire barrier.

707.10 Joints at intersections of fire barriers and nonfire-resistance-rated exterior walls The joints created at the intersection of a fire barrier and a nonfire-resistance-rated exterior wall assembly shall be filled. An approved material or system shall be used to fill the joint, and it shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

~~**715.4 Joints between fire barriers and nonfire-resistance-rated roofs** Where required elsewhere in this code,joints at the intersection of fire barriers and the underside of a nonfire-resistance-rated roof sheathing, slab or deck above shall be protected by an approved continuity head-of-wall joint system installed as tested in accordance with ASTM E 2837 to provide a F rating for a time period not less than the required fire-resistance rating of the wall assembly in which it is installed.~~

~~**715.4.1 Installation** Continuity head-of-wall joint systems shall be securely installed in or over the joint for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.~~

Commenter's Reason: The committee disapproved code change proposal FS34 Part II based on a lack of data to substantiate the need for such a system. However, this is a common condition present in Construction Types IIB, IIIB, and VB, including metal buildings, where a vertical fire barrier meets a nonrated horizontal assembly. The building code requires continuity at these joints. This modified proposal adds an option that provides continuity at these joints with a tested system. UL listings currently exist for these systems. Also included in this modified proposal is the replacement of the term "void" with "joint," which is more appropriate. These modifications will make it easier for building officials to enforce the building code. We urge you to overturn the original disapproval of code change proposal FS34 Part II and approve this modified proposal.

FS34-15 Part II

NOTE: PART I DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

FS34-15 Part I

706.10, 706.10.1 (New), 706.10.2 (New), Chapter 35

Proposed Change as Submitted

Proponent : Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

706.10 Joints. Joints made in or between *fire walls* shall comply with Section 715.

Add new text as follows:

706.10.1 Joints at floors. Where a fire wall is permitted to terminate at the underside of the roof sheathing, deck or slab in accordance with 706.6, joints at the intersection of a fire wall and the underside of a fire-resistance-rated roof assembly, slab or deck above shall comply with Section 715.

706.10.2 Joints at nonfire-resistance rated roof intersections in lieu of parapets. Where vertical continuity in accordance with section 706.6 is not provided by a parapet, joints at the intersection of a fire wall and a nonfire-resistance-rated roof assembly, roof slab, or roof deck shall be protected by an approved continuity head of wall joint system installed as tested in accordance with ASTM E2837. The system shall have an F rating/T rating of not less than that of the firewall.

Add new standard(s) as follows:
Add new Referenced Standard to Chapter 35 as follows:

ASTM E2837, Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed between Rated Wall Assemblies and Nonrated Horizontal Assemblies.

Reason: The Code allows several exceptions to the general requirement for vertical continuity of fire walls in section 706.6, and specifically to the requirement to have a parapet. However, unlike for fire barriers, the Code is silent as to how the joints created between the top of a fire wall and a fire-resistance rated and/or non-fire-resistance rated roof are to be protected from fire spread through the top-of-wall joint when any of the parapet exceptions are used.
In the case of fire barriers, which are a less critical building safety feature than fire walls, Section 707.9 was added to the 2012 IBC to clarify that voids created at the intersection of a fire barrier and a nonfire-resistance rated roof assembly must be filled with an approved material or system to prevent fire spread. One example of such an application is a fire barrier used to separate occupancies in a metal (typically pre-engineered) building that would not have a fire-rated roof. The ASTM E 2837 Standard evaluates continuity head-of-wall joint systems for this specific application. The joint systems tested and listed in accordance with ASTM E2837 provide an assurance that the installed joint detail will provide the continuity of fire resistance established by the rated wall assembly, right up to the deck above.

In the hierarchy of passive fire protection construction elements, fire walls are used in the most critical locations and applications. The code language proposed here

parallels that of sections 707.8 and 707.9 for fire barriers, except that in 706.12, the ASTM E2837 standard has been referenced. Using tested joint systems at the top of the firewall where the firewall ends below the roof deck will provide an assurance that fire cannot get past the fire wall at this potential weak point. None of the joint systems listed by UL for this application require any modifications to the wall or to the roof deck. The test is focused only on the fire performance of the joint itself.

At the time Section 707.9 was proposed to address the top-of-wall joint for fire barriers intersecting a non-rated roof, no consensus test standard existed to test head-of-wall joint systems involving nonfire-resistance rated horizontal assemblies. Therefore, the 2012 code described how the void protection is to be provided. However, it is rather subjective for the designer and code official to determine. ASTM E 2837, "Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated horizontal Assemblies" was developed precisely to address this condition. This standard allows for the objective evaluation of a joint's ability to prevent fire spread through the joint installed at the intersection of a rated wall assembly and a non-rated roof assembly.

The ASTM E 2837 F and T ratings directly address the top-of-wall joint performance requirements specified in 707.9 that the material or system will not dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases. For fire walls, the Code should specify a test method for the top-of-wall joint to ensure that this performance is achieved without any doubt.

Cost Impact: Will not increase the cost of construction
Based on the continuity provisions, these joints are already required to be addressed.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E2837, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS34-15 Part I : 706.10.1 (New)-CRIMI4301

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on a lack of data to substantiate the need for such a system. Further, it seems that these requirements would better fit in Section 705. Lastly, the committee felt that the installation of these systems would increase the cost of construction contrary to what the proponent indicated.

Assembly Action : None

NOTE: PART III DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

FS34-15 Part III

715.7 (New), Chapter 35

Proposed Change as Submitted

Proponent : Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

Add new text as follows:

715.7 Joints at top of wall Intersections in fire barriers The voids created at the intersection of a fire barrier and a non-fire-resistance-rated floor or roof sheathing, slab or deck above shall be protected by an approved continuity head of wall joint system installed as tested in accordance with ASTM E2837. The system shall have an F rating/T rating of minimum 1 hour, but not less than that of the fire barrier.

Add new standard(s) as follows:
ASTM E 2837-13, Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed between Rated Wall Assemblies and Nonrated Horizontal Assemblies

Reason: Chapter 7 of the IBC has numerous requirements for continuity of vertical and horizontal fire resistance rated assemblies. Wall continuity (i.e. continuity of fire resistance) is required at joint openings, which are typically linear voids, gaps, openings, or other discontinuities within an assembly, or at the intersection with other assemblies. For the intersection of a rated wall assembly and nonrated horizontal assembly above (floor or roof), the joint between the two assemblies would need to provide the same fire resistance as the rated wall assembly. A joint detail with fire resistance less than that of the wall would allow for the propagation of fire and/or smoke to the other side of the wall much earlier than the rated wall would, thus diminishing the life safety function of the rated wall, and even making the wall near useless if the fire and/or smoke are able to spread very quickly through the joint above the wall to the other side of the fire barrier.
Test methods ASTM E1966 and UL 2079, which are referenced in the IBC, are only applicable to the testing of joints between two intersecting assemblies if both of the assemblies are fire resistance rated. To allow the evaluation of the fire resistance of joint details between a fire resiatance rated wall and a non-fire rated roof or floor above, ASTM began work in 2007 on a new test method. That test standard was completed and issued in 2011, and was issued as "ASTM E2837, Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed between Rated Wall Assemblies and Nonrated Horizontal Assemblies". With the standard having existed for almost 4 years, both UL and Intertek now have tested system listings in accordance with the standard.

It is important to note that none of the listed systems requires any modifications at all to the wall assembly or to the floor or roof assembly above. The listed systems simply specify the materials that are needed to fill and seal the joint in a manner that will prevent premature fire spread through that joint. As indicated by the title of the ASTM standard ("Continuity Head of Wall Joint Systems"), the test is designed to evaluate the continuity of the wall's fire resistance rating up to the underside of the floor or roof deck above. Passing the test means that the joint detail must not allow

fire spread through the joint prior to the given fire resistance rating, which would normally be the fire resistance rating of the fire barrier wall.

Section 707.5 requires smoke barriers to form an effective membrane continuous from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, deck or slab above, including continuity through concealed spaces, such as those found above suspended ceilings, and interstitial structural and mechanical spaces. Section 707.9 of the IBC requires the joint opening at the top of the rated fire barrier wall assembly below the nonrated horizontal assembly to be protected, using performance language and dictating that the chosen material or system be approved. The ASTM E 2837 Standard was created to evaluate continuity head-of-wall joint systems for this specific application, providing exactly the code-mandated performance. Using a tested joint detail, instead of allowing joint details to be improvised for each and every building and then requiring the AHJ to approve the detail, will prvide a measure of consistency, predictability, and an even level of life safety from one building to the next.

To achieve the rating, the joint system must remains in the opening during the fire resistance test and the hose stream test, and will have withstood the fire resistance test for the rating period equal to the rated wall assembly by preventing flaming on the unexposed side of the test specimen and on the underside of the nonrated horizontal assembly on the unexposed side. The Integrity test also ensures no occurrence of ignition of the cotton pad, which is related to the passage of hot gases in the current IBC 707.9 requirements.

Cost Impact: Will increase the cost of construction
This proposal may increase the cost of construction if the chosen joint detail for a given installation requires more work or higher cost materials than an inferior joint detail that an AHJ might have been willing to approve. This proposal may decrease the cost of construction in cases where it allows a contractor to simply specify a tested and listed detail, thus saving on the time and costs of designing a unique joint detail and getting that detail approved.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E2837, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS34-15 Part III : 715.7 (New)-CRIMI4304

Public Hearing Results

Part III

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on a lack of data to substantiate the need for such a system. Further, the committee felt that the installation of these systems would increase the cost of construction contrary to what the proponent indicated.

Assembly Action : None

FS35-15

707.3.11 (New), 711.2.4.7 (New)

Proposed Change as Submitted

Proponent : Adolf Zubia, ICC Staff, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Add new text as follows:

707.3.11 Fire Pump Rooms. The *fire barriers* separating fire pump rooms from other building areas shall have a *fire-resistance rating* of not less than that is indicated in Section 913.2.1.

711.2.4.7 Fire Pump Rooms. The *horizontal assemblies* separating fire pump rooms from other building areas shall have a *fire-resistance rating* of not less than that is indicated in Section 913.2.1.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc
Fire pump rooms are constructed of fire barriers and horizontal assemblies as stated in Section 913.2.1 but a pointer should be inserted in the fire barrier section for designers and code officials. F203–07/08 inserted 912.2.1, however, it was never correlated to the fire barrier or horizontal assembly section in Chapter 7.

Cost Impact: Will not increase the cost of construction
This change does not add any new requirements for fire resistance rated separation of fire pump rooms. It merely provides guidance to the designer by pointing to the existing requirements for both vertical and horizontal separation.

FS35-15 : 707.3.11 (New)-ZUBIA4193

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt this proposal added redundant language to the code as the user will obtain these same requirements in Chapter 9.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: This proposal correlates the fire pump room requirements from Chapter 9 to Chapter 7 as originally intended by the proponent of F203–07/08. The committee correctly stated that this is redundant language, however, Sections 707.3 and 711.2.4 is a list of items already correlated to other parts in the code. This list is helpful to the users of the code and adding fire pump room construction completes the list and should be included.
This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: FCAC Website

FS35-15

FS36-15
707.6

Proposed Change as Submitted

Proponent : Joseph Hetzel, representing Door & Access Systems Manufacturers Association (Jhetzel@thomasamc.com)

2015 International Building Code

Revise as follows:

707.6 Openings. Openings in a *fire barrier* shall be protected in accordance with Section 716. Openings shall be limited to a maximum aggregate width of 25 percent of the length of the wall, and the maximum area of any single opening shall not exceed 156 square feet (15 m^2). Openings in enclosures for exit access stairways and ramps, interior exit stairways and ramps and exit passageways shall also comply with Sections 1019, 1023.4 and 1024.5, respectively.

Exceptions:

1. Openings shall not be limited to 156 square feet (15 m^2) where adjoining floor areas are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Openings shall not be limited to 156 square feet (15 m^2) or an aggregate width of 25 percent of the length of the wall where the opening protective is a fire door serving enclosures for exit access stairways and ramps, and interior exit stairways and ramps.
3. Openings shall not be limited to 156 square feet (15 m^2) or an aggregate width of 25 percent of the length of the wall where the opening protective has been tested in accordance with ASTM E 119 or UL 263 and has a minimum *fire-resistance rating* not less than the *fire-resistance rating* of the wall.
4. Fire window assemblies permitted in atrium separation walls shall not be limited to a maximum aggregate width of 25 percent of the length of the wall.
5. Openings shall not be limited to 156 square feet (15 m^2) or an aggregate width of 25 percent of the length of the wall where the opening protective is a fire door assembly in a *fire barrier* separating an enclosure for *exit access* stairways and ramps, and interior exit stairways and ramps from an exit passageway in accordance with Section 1023.3.1.
6. <u>Openings shall not be limited to 156 square feet (15 m2) or an aggregate width of 25 percent of the length of the wall where the opening protective is a rolling steel *fire door* tested in accordance with UL 10B or NFPA 252 and labeled in accordance with Section 716.5.7.2.</u>

Reason: The current Exceptions do not address rolling steel fire doors, the most

common opening protective greater than 156 square feet (15 m^2). The proposed Exception reflects long-standing common practice where the use of rolling steel fire doors have been determined to be both necessary and practical as opening protectives. Rolling steel fire doors offer benefits and provide solutions for opening protection not available with other types of fire doors and should also qualify for exception.

Cost Impact: Will not increase the cost of construction
None.We believe the proposed change is consistent with common current practice and therefore only permits what is already being done. Since it is already being done, there is no effect on product or cost and therefore requires no further study.

FS36-15 : 707.6-HETZEL3421

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal because without the 25 percent aggregate width limitation there is no maximum on the number of these types of doors in a single length of fire barrier. Further, fire testing to substantiate this type of opening has not been submitted.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Joseph Hetzel, representing Door & Access Systems Manufacturers Association (Jhetzel@thomasamc.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

707.6 Openings. Openings in a *fire barrier* shall be protected in accordance with Section 716. Openings shall be limited to a maximum aggregate width of 25 percent of the length of the wall, and the maximum area of any single opening shall not exceed 156 square feet (15 m^2). Openings in enclosures for exit access stairways and ramps, interior exit stairways and ramps and exit passageways shall also comply with Sections 1019, 1023.4 and 1024.5, respectively.

Exceptions:

1. Openings shall not be limited to 156 square feet (15 m^2) where adjoining floor areas are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Openings shall not be limited to 156 square feet (15 m^2) or an aggregate width of 25 percent of the length of the wall where the opening protective is a fire door serving enclosures for exit access stairways and ramps, and interior exit stairways and ramps.

3. Openings shall not be limited to 156 square feet (15 m^2) or an aggregate width of 25 percent of the length of the wall where the opening protective has been tested in accordance with ASTM E 119 or UL 263 and has a minimum *fire-resistance rating* not less than the *fire-resistance rating* of the wall.
4. Fire window assemblies permitted in atrium separation walls shall not be limited to a maximum aggregate width of 25 percent of the length of the wall.
5. Openings shall not be limited to 156 square feet (15 m^2) or an aggregate width of 25 percent of the length of the wall where the opening protective is a fire door assembly in a *fire barrier* separating an enclosure for *exit access* stairways and ramps, and interior exit stairways and ramps from an exit passageway in accordance with Section 1023.3.1.
6. ~~Openings shall not be limited to 156 square feet (15 m2) or an aggregate width of 25 percent of the length of the wall where the opening protective is a~~ A single rolling steel *fire door* tested in accordance with UL 10B or NFPA 252~~ and~~ , labeled in accordance with Section 716.5.7.2, and not exceeding 12 feet (3.66 m) in opening width and 14 feet (4.27 m) in opening height, shall be permitted as an opening protective in the wall.

Commenter's Reason:

- The language change from what was originally proposed in FS 36-15 addresses the concern about installing multiple rolling steel fire doors in a fire barrier wall. A single rolling steel fire door is commonly necessary for vehicular access and material handling purposes.
- Where a single rolling steel fire door is used in a fire barrier wall, the 25% maximum aggregate width allowance may be insufficient to allow a minimum useful opening width.
- The proposed maximum opening width and height dimensions accommodate vehicles and equipment commonly passing through openings utilizing rolling steel fire doors. The resulting 168 square foot maximum area represents only a 12 square foot increase above the current 156 square foot limitation. The new maximum area is accommodated by an oversize label, or an oversize certificate, issued by the listing agency which is typical of rolling steel fire doors larger than 120 square feet.

FS36-15

FS37-15
707.9

Proposed Change as Submitted

Proponent : Masoud Sabounchi, representing masoud sabounchi (masoud@acecode.com)

2015 International Building Code

Revise as follows:

707.9 Voids at intersections. The voids created at the intersection of a *fire barrier* and ~~a nonfire-resistance-rated roof assembly or~~ _ a nonfire-resistance-rated exterior wall assembly shall be filled._ An approved material or system shall be used to fill the void, and shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

Reason: Section 707.5 requires fire barriers to be continuous through concealed spaces and be attached to the underside of the floor or roof sheathing, slab or deck. Section 707.9 creates a conflict with section 707.5 by allowing the fire barriers to terminate at the ceiling and the cavity space above the ceiling to be filled. Section 707.9 would allow fire barriers such as shafts, occupancy separations and similar to be discontinued through the cavity space of a non-fire resistance rated roof-ceiling assembly while the same fire barrier has to be continuous thru the cavity space of a fire resistance rated roof-ceiling assembly. This proposal coordinates section 707.9 with 707.5.

Cost Impact: Will not increase the cost of construction
This proposal is for coordiantion of section 707.9 with 707.5

FS37-15 : 707.9-SABOUNCHI4361

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The committee agreed that this proposal appropriately coordinates section 707.9 and 707.5.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Tony Crimi, representing International Firestop Council requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

707.9 Voids at intersections. The voids created at the intersection of a

fire barrier and– a nonfire-resistance rated roof sheathing, slab or deck or a nonfire-resistance-rated exterior wall assembly shall be filled. An approved material or system shall be used to fill the void, and shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

Commenter's Reason: The proponent of this change identified a potential conflict in the language between 707.5 and 707.9, but as accepted by the Committee, this proposal creates a new problem.

The simple deletion of the text that was submitted by the proponents of FS37-15 will not fix the problem because the last sentence of 707.5 still directs the Code user to 707.8 and 707.9 for joints and voids at intersections. Even though users are directed to 707.9 from 707.5, the language submitted and accepted by the committee now provides no information to Code users on how to address voids at the intersection of fire barriers and roofs.

The preferred remedy is to bring consistency to the language between these two sections by using the same terminology in the two sections, as proposed here. This will clarify that 707.5 clearly addresses roof assemblies, and 707.9 addresses voids at intersections even where there is no membrane below the nonfire-resistance-rated roof sheathing, slab or deck.

Public Comment 2:

Proponent : Vincent Sagan, Thomas Associates, Inc., representing Metal Building Manufacturers Association (vsagan@mbma.com) requests Disapprove.

Commenter's Reason: Code change proposal FS37-15 modifies **Section 707.9 Voids at intersections**. This section is part of the fire barriers section of the IBC. Section 707.9 of the 2015 IBC clarifies that the void at the intersection of a fire barrier and a nonfire-resistant-rated roof, which is very common in metal buildings, shall be filled with an approved material that is securely installed for the entire length of the void so building movements can be accommodated and the passage of fire and hot gases are retarded. This clarification was a code change proposal submitted by the MBMA that was added to the 2012 IBC. It is also consistent with IBC Interpretation 34-08 on the 2006 IBC (see figure).

The reason for code change proposal FS37-15 is to remove a conflict between Section 707.5 and 707.9. However, there is no conflict. Section 707.5 of the 2015 IBC, copied below, addresses the continuity and extent of fire barriers:

"707.5 Continuity. Fire barriers shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and shall be securely attached thereto. Such fire barriers shall be continuous through concealed space, such as the space above a suspended ceiling. Joints and voids at intersections shall comply with Sections 707.8 and 707.9."

Section 707.9 of the 2015 IBC addresses only the void at intersections of a fire barrier and nonfire-resistance-rated roof and exterior wall assemblies. In addition, Section 707.5 references Section 707.9 to address voids. Clearly Sections 707.5 and 707.9 pertain to different subjects. As a result, this code change proposal is unwarranted and incorrect. Thus, MBMA recommends that it should not be adopted.

CHAPTER 7
FIRE-RESISTANCE-RATED CONSTRUCTION

SECTION 713.1
2006 Edition

IBC Interpretation 34-08
Issued 2-20-2009
BU_06_34_08

713.1 General. Joints installed in or between fire-resistance-rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved fire-resistant joint system designed to resist the passage of fire for a time period not less than the required fire-resistance rating of the wall, floor or roof in or between which it is installed. Fire-resistant joint systems shall be tested in accordance with Section 713.3. The void created at the intersection of a floor/ceiling assembly and an exterior curtain wall assembly shall be protected in accordance with Section 713.4.

Exception: Fire-resistant joint systems shall not be required for joints in all of the following locations:

1. Floors within a single dwelling unit.
2. Floors where the joint is protected by a shaft enclosure in accordance with Section 707.
3. Floors within atriums where the space adjacent to the atrium is included in the volume of the atrium for smoke control purposes.
4. Floors within malls.
5. Floors within open parking structures.
6. Mezzanine floors.
7. Walls that are permitted to have unprotected openings.
8. Roofs where openings are permitted.
9. Control joints not exceeding a maximum width of 0.625 inch (15.9 mm) and tested in accordance with ASTM E 119.

• • • • • • • • • •

Q: Do the provisions of Section 713.1 of the *International Building Code* apply to a joint that occurs between a fire-resistance-rated assembly and a non-fire-resistance-rated assembly, such as where a fire-resistance-rated wall assembly terminates at the underside of a non-fire-resistance-rated roof assembly?

A: No. The provisions of Section 713.1 of the *International Building Code* are not applicable to the joint between a fire-resistance-rated assembly and a non-fire-resistance-rated assembly. The applicable code requirements for this type of intersection are contained in the provisions regarding continuity of the specific building element under consideration.

FS41-15
708.4, 718.4.2

Proposed Change as Submitted

Proponent : Jeffrey Shapiro, National Multifamily Housing Council, representing National Multifamily Housing Council (jeff.shapiro@intlcodeconsultants.com); Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Building Code

Revise as follows:

708.4 Continuity. Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached thereto. In combustible construction where the *fire partitions* are not required to be continuous to the sheathing, deck or slab, the space between the ceiling and the sheathing, deck or slab above shall be fireblocked or draftstopped in accordance with Sections 718.2 and 718.3 at the partition line. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall supported, except for walls separating tenant spaces in *covered and open mall buildings*, walls separating *dwellingunits*, walls separating *sleeping units* and *corridor* walls, in buildings of Type IIB, IIIB and VB construction.

Exceptions:

1. The wall need not be extended into the crawl space below where the floor above the crawl space has a minimum 1-hour *fire-resistance rating*.
2. Where the room-side fire-resistance-rated membrane of the *corridor* is carried through to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, the ceiling of the *corridor* shall be permitted to be protected by the use of ceiling materials as required for a 1-hour fire-resistance-rated floor or roof system.
3. Where the *corridor* ceiling is constructed as required for the *corridor* walls, the walls shall be permitted to terminate at the upper membrane of such ceiling assembly.
4. The fire partitions separating tenant spaces in a *covered or open mall building*, complying with Section 402.4.2.1, are not required to extend beyond the underside of a ceiling that is not part of a fire-resistance-rated assembly. A wall is not required in *attic* or ceiling spaces above tenant separation walls.
5. Attic fireblocking or draftstopping is not required at the partition line in Group R-2 buildings that do not exceed four *storiesabovegrade plane*, provided the *attic* space is subdivided by draftstopping into areas not exceeding 3,000

square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.

6. Fireblocking or draftstopping is not required at the partition line in buildings equipped with an *automatic sprinkler system* installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, provided that automatic sprinklers are installed in combustible floor/ceiling and roof/ceiling spaces.
7. In attics exceeding 5,000 square feet in area or covering more than four dwelling units in R-2 occupancies, attic fireblocking or draftstopping is not required at the partition line where the attic space is subdivided by multi-layered draftstops into areas not exceeding 5,000 square feet or above every four dwelling units, whichever is smaller, using one of the following for draftstopping materials. Joints of each layer shall be staggered from other layers. If roof trusses are used, draftstopping material shall be permitted to be placed with multiple layers on one side of the truss or with one or more layers on opposite sides.
    - 7.1. 2 or more layers of ½" gypsum board
    - 7.2. 2 or more layers of 15/32" wood structural panel,
    - 7.3. 3 or more layers of 7/16" oriented strand board (OSB),
    - 7.4. Other *approved* materials adequately supported.

718.4.2 Groups R-1 and R-2. Draftstopping shall be provided in *attics*, mansards, overhangs or other concealed roof spaces of Group R-2 buildings with three or more *dwellingunits* and in all Group R-1 buildings. Draftstopping shall be installed above, and in line with, *sleeping unit* and *dwellingunit* separation walls that do not extend to the underside of the roof sheathing above.

Exceptions:

1. Where *corridor* walls provide a *sleeping unit* or *dwellingunit* separation, draftstopping shall only be required above one of the *corridor* walls.
2. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. In occupancies in Group R-2 that do not exceed four *storiesabovegrade plane*, the *attic* space shall be subdivided by *draftstops* into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.
4. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers are installed in the combustible concealed space where the draftstopping is being omitted.
5. In attics exceeding 5,000 square feet in area or covering more than four dwelling units in R-2 occupancies, attic fireblocking or draftstopping is not required at the partition line where the attic space is subdivided by multi-layered draftstops into areas not exceeding 5,000 square feet or

above every four dwelling units, whichever is smaller, using one of the following for draftstopping materials. Joints of each layer shall be staggered from other layers. If roof trusses are used, draftstopping material shall be permitted to be placed with multiple layers on one side of the truss or with one or more layers on opposite sides.

5.1. 2 or more layers of ½" gypsum board,
5.2. 2 or more layers of 15/32" wood structural panel,
5.3. 3 or more layers of 7/16" oriented strand board (OSB),
5.4. Other approved materials adequately supported.

–

Reason: Concerns have been expressed by some fire officials regarding the expected time to failure of single layer attic draftstops; albeit, it is recognized that draftstops are not intended to offer significant fire resistance. The concept offered by this proposal is to provide draftstops that have a more robust fire performance at increased intervals, recognizing that staggered joints on multiple layers and increased material thickness to approximately one inch will significantly increase time to failure of an assembly versus what is currently permitted by the code. This improves the likelihood for an assembly to still be in place when the fire department arrives on the scene of a fire that has originated in or extended to an attic. Using IBC Table 722.6.2(1) for guidance, 2 layers of ½" gypsum board or 2 layers of 15/32" wood structural panel (such as plywood) bonded with exterior glue may provide 20 minutes of fire resistance. OSB is also a wood structural panel, but because industry standard is to use 7/16" OSB (as compared to 15/32" plywood), 3 layers was determined to be appropriate, given the performance objectives of this section. The proposed 5,000 square foot or 4-dwelling unit (whichever is smaller) threshold for applying this exception is included to ensure that someone won't argue that attics with a total area that is smaller than these thresholds don't need any draftstopping at all.
If the proposal that rewrites the entirety of Section 708.4 is approved, it is the intent of this code change that the proposed exception become Exception 4 to the revised Section 708.4.2, and there would be no need to duplicate the exception in Section 718.

Cost Impact: Will not increase the cost of construction
This proposal offers an additional option for construction that is not mandatory; therefore, it will not increase the cost of construction.

FS41-15 : 708.4-SHAPIRO5307

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that these provisions should be further limited to two dwelling units because at the proposed 5000 square foot threshold a fire can affect 3 or 4 dwelling units depending on their design and size.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jeffrey Shapiro, representing National Multifamily Housing Council (jeff.shapiro@intlcodeconsultants.com) requests Approve as Submitted.

Commenter's Reason: The primary concern that led to a disapproval recommendation, contrary to the committee reason statement, was the lack of a stated story limit in the proposal. I was asked whether the intent of the new exception was to limit the application to 4-story buildings, and I responded "yes," without stating why. Then, since no such limit was stated in the proposal, the committee viewed the lack of a story limit as a deficiency. Since testimony had already been closed, I wasn't given a chance to offer that there was/is no reason to include a 4-story limit in the proposal because buildings exceeding 4 stories in height are required to have NFPA 13 sprinkler systems (not 13R). Once and NFPA 13 compliant attic protection has been provided, the new exception would be entirely moot because draftstops are not required in buildings protected in accordance with NFPA 13.

FS41-15

FS42-15

708.1, 708.4, 708.4 (New), 708.4.1 (New), 708.4.2 (New), 718.3, 718.3.2, 718.3.3, 718.4, 718.4.2, 718.4.3

Proposed Change as Submitted

Proponent : Jeffrey Shapiro, National Multifamily Housing Council, representing National Multifamily Housing Council (jeff.shapiro@intlcodeconsultants.com)

2015 International Building Code

Revise as follows:

708.1 General. The following wall assemblies shall comply with this section.

1. Separation walls as required by Section 420.2 for ~~Groups~~ Group I-1~~, R-1, R-2~~ and ~~R-3~~ Group R occupancies.
2. Walls separating tenant spaces in *covered and open mall buildings* as required by Section 402.4.2.1.
3. Corridor walls as required by Section 1020.1.
4. Elevator lobby separation as required by Section 3006.2.
5. Egress balconies as required by Section 1019.2

Delete and substitute as follows:

~~**708.4 Continuity.** Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached thereto. In combustible construction where the *fire partitions* are not required to be continuous to the sheathing, deck or slab, the space between the ceiling and the sheathing, deck or slab above shall be fireblocked or draftstopped in accordance with Sections 718.2 and 718.3 at the partition line. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall supported, except for walls separating tenant spaces in *covered and open mall buildings*, walls separating *dwellingunits*, walls separating *sleeping units* and *corridor* walls, in buildings of Type IIB, IIIB and VB construction.~~

~~**Exceptions:**~~

1. ~~The wall need not be extended into the crawl space below where the floor above the crawl space has a minimum 1-hour *fire-resistance rating*.~~
2. ~~Where the room-side fire-resistance-rated membrane of the *corridor* is carried through to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, the ceiling of the *corridor* shall be permitted to be protected by the use of ceiling materials as required for a 1-hour fire-resistance-rated floor or roof system.~~
3. ~~Where the *corridor* ceiling is constructed as required for the~~

~~*corridor* walls, the walls shall be permitted to terminate at the upper membrane of such ceiling assembly.~~

~~4. The fire partitions separating tenant spaces in a *covered or open mall building*, complying with Section 402.4.2.1, are not required to extend beyond the underside of a ceiling that is not part of a fire-resistance-rated assembly. A wall is not required in *attic* or ceiling spaces above tenant separation walls.~~

1. ~~Attic fireblocking or draftstopping is not required at the partition line in Group R-2 buildings that do not exceed four *storiesabovegrade plane*, provided the *attic* space is subdivided by draftstopping into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.~~

~~2. Fireblocking or draftstopping is not required at the partition line in buildings equipped with an *automatic sprinkler system* installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, provided that automatic sprinklers are installed in combustible floor/ceiling and roof/ceiling spaces.~~

708.4 Continuity Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to:

1. The underside of the floor or roof sheathing, deck or slab above, or
2. The underside of a floor/ceiling or roof/ceiling assembly having a fire-resistance rating that is not less than the fire-resistance rating of the fire partition.

Fire partitions shall be securely attached to 1 or 2 above.

Exceptions:

1. Fire partitions shall not be required to extend into a crawl space below where the floor above the crawl space has a minimum 1-hour fire-resistance rating.

2. Fire partitions serving as a corridor wall shall not be required to extend above the lower membrane of a corridor ceiling provided the corridor ceiling membrane is equivalent to corridor wall membrane, and either:

2.1. The room-side membrane of the corridor wall extends to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, or

2.2. The building is equipped with an automatic sprinkler system installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, including automatic sprinklers installed in the space between the top of the fire partition and underside of the floor or roof sheathing, deck or slab above.

3. Fire partitions serving as a corridor wall shall be permitted to terminate at the upper membrane of the corridor ceiling assembly where the corridor ceiling is constructed as required for the corridor wall.

4. Fire partitions separating tenant spaces in a covered or open mall

building complying with Section 402.4.2.1 shall not be required to extend above the underside of a ceiling. Such ceiling shall not be required to be part of a fire-resistance-rated assembly, and the attic or space above the ceiling at tenant separation walls shall not be required to be subdivided by fire partitions.

Add new text as follows:

708.4.1 Supporting construction. The supporting construction for a fire partition shall have a fire-resistance rating that is equal to or greater than the required fire-resistance rating of the supported fire partition.

Exception. In buildings of Type IIB, IIIB and VB construction, the supporting construction requirement shall not apply to fire partitions separating tenant spaces in covered and open mall buildings, fire partitions separating dwelling units, fire partitions separating sleeping units, and fire partitions serving as corridor walls.

708.4.2 Fireblocks and draftstops in combustible construction In combustible construction where fire partitions do not extend to the underside of the floor or roof sheathing, deck or slab above, the space above and along the line of the fire partition shall be provided with one of the following:

1. Fire-blocking up to the underside of the floor or roof sheathing, deck or slab above using materials complying with 718.2.1, or
2. Draftstopping up to the underside of the floor or roof sheathing, deck or slab above using materials complying with Section 718.3.1 for floors or 718.4.1 for attics.

Exceptions:
1. Buildings equipped with an automatic sprinkler system installed throughout in accordance with Section 903.3.1.1, or in accordance with Section 903.3.1.2 provided that protection is provided in the space between the top of the fire partition and underside of the floor or roof sheathing, deck or slab above as required for systems complying with Section 903.3.1.1.
2. Where corridor walls provide a sleeping unit or dwelling unit separation, draftstopping shall only be required above one of the corridor walls.
3. In Group R-2 occupancies with less than 4 dwelling units, fire-blocking and draftstopping shall not be required.
4. In Group R-2 occupancies that do not exceed four stories above grade plane, the attic space shall be subdivided by draftstops into areas not exceeding 3,000 square feet (279 m2) or above every two dwelling units, whichever is smaller.
5. In Group R-3 occupancies with less than 3 dwelling units, fire-blocking and draftstopping shall not be required in floor assemblies. This exception shall not apply to Group R-4.

Revise as follows:

718.3 Draftstopping in floors. ~~In combustible construction, draftstopping~~
Draftstopping shall be installed to subdivide floor/ceiling assemblies ~~in the locations prescribed~~ where required by Section 708.4.2. In other than Group R occupancies, draftstopping shall also be installed to subdivide

combustible floor/ceiling assemblies so that horizontal floor areas do not exceed 1,000 square feet (93 m2).

Exception: Buildings equipped throughout with an automatic sprinkler system in ~~Sections 718.3.2 through 718.3.3.~~ accordance with Section 903.3.1.1.

Delete without substitution:

~~**718.3.2 Groups R-1, R-2, R-3 and R-4.** Draftstopping shall be provided in floor/ceiling spaces in Group R-1 buildings, in Group R-2 buildings with three or more *dwellingunits*, in Group R-3 buildings with two *dwellingunits* and in Group R-4 buildings. Draftstopping shall be located above and in line with the *dwellingunit* and *sleeping unit* separations.~~

~~**Exceptions:**~~

~~1. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~
~~2. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers are installed in the combustible concealed spaces where the draftstopping is being omitted.~~

~~**718.3.3 Other groups.** In other groups, draftstopping shall be installed so that horizontal floor areas do not exceed 1,000 square feet (93 m^2).~~

~~**Exception:** Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~

Revise as follows:

718.4 Draftstopping in attics. ~~In combustible construction, draftstopping~~
Draftstopping shall be installed to subdivide *attic* spaces where required by Section 708.4.2. In other than Group R, draftstopping shall also be installed to subdivide combustible attic spaces and combustible concealed roof spaces ~~in the locations prescribed in Sections 718.4.2 and 718.4.3~~ such that any horizontal area does not exceed 3,000 square feet (279 m2). Ventilation of concealed roof spaces shall be maintained in accordance with Section 1203.2.

Exceptions. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

Delete without substitution:

~~**718.4.2 Groups R-1 and R-2.** Draftstopping shall be provided in *attics*, mansards, overhangs or other concealed roof spaces of Group R-2 buildings with three or more *dwellingunits* and in all Group R-1 buildings. Draftstopping shall be installed above, and in line with, *sleeping unit* and *dwellingunit* separation walls that do not extend to the underside of the roof sheathing above.~~

~~**Exceptions:**~~

1. ~~Where *corridor* walls provide a *sleeping unit* or *dwellingunit* separation, draftstopping shall only be required above one of the *corridor* walls.~~
2. ~~Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~
2. ~~In occupancies in Group R-2 that do not exceed four *storiesabovegrade plane*, the *attic* space shall be subdivided by *draftstops* into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.~~
3. ~~Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers are installed in the combustible concealed space where the draftstopping is being omitted.~~

~~**718.4.3 Other groups.** Draftstopping shall be installed in *attics* and concealed roof spaces, such that any horizontal area does not exceed 3,000 square feet (279 m^2).~~

~~**Exception:** Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~

Reason: 708.1 Editorial correlation with 2015 IBC Section 420.1, which added the requirement for separation walls in R-4 occupancies to be fire partitions. It is understood that Section 310.6 requires Group R-4 to meet requirements of Group R-3 unless otherwise specified by the IBC (that's also the reason that Section 708.4.2, Exception 5 for Group R-3 has to exclude R-4 to keep the exception consistent with current requirements). However, changing 708.1 to include all Group R occupancies will eliminate the appearance that R-4 has been omitted from the requirements of this section, particularly considering that R-4 is specifically listed in Section 420.1, which triggers provisions in Section 708.1.
708.4 The proposed rewrite results from an initial intent of adding another exception to this section (which I've now done in a separate proposal). I hadn't read the text of this section in quite some time because I knew what it was supposed to say. However, when I actually read the text, I found it unintelligible. The base paragraph has several different things going on…basic continuity, draftstopping/fire-blocking above, and supporting construction requirements. Then the 6 exceptions that follow aren't clear with respect to which parts of the main paragraph they apply to. Making matters worse, there is overlap and conflict between 708.4 and 718.3.2 and 718.4.2. I decided to undertake rewriting all of the provisions in an attempt to fix these issues while maintaining the current technical requirements. Although there has been no deliberate intent to change how the code applies, there were cases where interpretations were necessary to clarify conflicting provisions.

Deciphering the apparent intent of the code, pulling the sections and exceptions into pieces and reassembling them into comprehensible requirements took many hours, and I invite all "code groupies" and industry experts to closely compare the current and proposed provisions and notify me if any unintentional technical changes have occurred.

718.3.2 and 718.4.2. The existing draftstopping thresholds in 718.3.2 and 718.4.2 are specific to certain occupancies. These conflict with the draftstopping requirements in Section 708.4.2, which relate to continuity of fire partitions (recognizing that all dwelling and sleeping unit separations are fire partitions, as required by Sections 420.1 and 420.2). Based on the "specific over general" rule in Section 102.1 and the fact that there would be no reason for the current code to

include the thresholds in 718.3.2 and 718.4.2 if they weren't intended to override Section 708.4.2, the existing special thresholds in 718.3.2 and 718.4.2 were moved to Section 708.4 to eliminate the conflict and consolidate all of the draftstopping requirements for Group R in a single location.

The current text related to mansards and overhangs is irrelevant because the following sentence in the current Section 718.4.2 ties this text only to continuity of fire partitions that form separations for sleeping units and dwelling units.
By referencing the revised 708.4 in this proposal, any space above a fire partition (mansard, overhang, or whatever) requires the same level of protection based on the "continuity of fire partitions" requirement.

One additional change that should be considered by the Code Development Committee, but was skipped in this proposal because it is a technical change, is extending the Group R exception in Section 718.4 of this proposal (for attics) to include all Group R occupancies, as is the case for floor assemblies under 718.3.2 of the 2015 IBC. There is no apparent reason for 718.3 and 718.4 to have handled Group R occupancies differently for floors vs. attic spaces, and it makes more sense for all Group R attics to follow Section 708.4.2. Without fixing this, R-3 and R-4 will continue to have conflicting requirements in 708.4.2 and 718.4.

Cost Impact: Will not increase the cost of construction
There will be no impact on the cost of construction other than the cost savings associated with countless hours of design time that was saved by people who no longer had to study these sections for hours to figure out what the actually required.

FS42-15 : 708.1-SHAPIRO5284

Public Hearing Results

Committee Action: Approved as Modified

Modification:

718.4 Draftstopping in attics. Draftstopping shall be installed to subdivide attic spaces where required by Section 708.4.2. In other than Group ~~R-1 and R-2~~ R occupancies, draftstopping shall also be installed to subdivide combustible attic spaces and combustible concealed roof spaces such that any horizontal area does not exceed 3,000 square feet (279 m2). Ventilation of concealed roof spaces shall be maintained in accordance with Section 1203.2.

> **Exceptions.** Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

Committee Reason: The committee agreed that the proposal was an editorial clarification that resulted in better application and enforcement of the provisions. The modification correctly makes Section 718.4 applicable to all Group R occupancies.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Carl Baldassarra, P.E., FSFPA, representing Code Technologies Committee (CTC@iccsafe.org) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

708.4.2 Fireblocks and draftstops in combustible construction In combustible construction where fire partitions do not extend to the underside of the floor or roof sheathing, deck or slab above, the space above and along the line of the fire partition shall be provided with one of the following:

1. Fire-blocking up to the underside of the floor or roof sheathing, deck or slab above using materials complying with 718.2.1, or
2. Draftstopping up to the underside of the floor or roof sheathing, deck or slab above using materials complying with Section 718.3.1 for floors or 718.4.1 for attics.

Exceptions:

1. Buildings equipped with an automatic sprinkler system installed throughout in accordance with Section 903.3.1.1, or in accordance with Section 903.3.1.2 provided that protection is provided in the space between the top of the fire partition and underside of the floor or roof sheathing, deck or slab above as required for systems complying with Section 903.3.1.1.
2. Where corridor walls provide a sleeping unit or dwelling unit separation, draftstopping shall only be required above one of the corridor walls.
3. In Group R-2 occupancies with less than 4 dwelling units, fire-blocking and draftstopping shall not be required.
4. In Group R-2 occupancies that do not exceed four stories above grade plane, the attic space shall be subdivided by draftstops into areas not exceeding 3,000 square feet (279 m2) or above every two dwelling units, whichever is smaller.
5. In Group R-3 occupancies with less than 3 dwelling units, fire-blocking and draftstopping shall not be required in floor assemblies. ~~This exception shall not apply to Group R-4.~~

Commenter's Reason: This proposed modification is to delete the R-4 phrase in 708.4.2, Exception 5. FS122-15 deleted the requirement in 718.3.2 for Group R-4 and was approved. The reason from the proponent stated "There is no apparent reason for 718.3 and 718.4 to have handled Group R occupancies differently for floors vs. attic spaces, and it makes more sense for all Group R attics to follow Section 708.4.2. Without fixing this, R-3 and R-4 will continue to have conflicting requirements in 708.4.2 and 718.4". The phrase in Section 708.4.2, Exception should be deleted for consistency with the decision. Group R-4 and R-3 will be treated the same.

Public Comment 2:

Proponent : Tony Crimi, representing International Firestop Council requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

708.4 Continuity Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to:

1. The underside of the floor or roof sheathing, deck or slab above, or
2. The underside of a floor/ceiling or roof/ceiling assembly having a fire-resistance rating that is not less than the fire-resistance rating of the fire partition.

Fire partitions shall be securely attached to 1 or 2 above.

Exceptions:

1. Fire partitions shall not be required to extend into a crawl space below where the floor above the crawl space has a minimum 1-hour fire-resistance rating.
2. Fire partitions serving as a corridor wall shall not be required to extend above the lower membrane of a corridor ceiling provided the corridor ceiling membrane ~~is~~ has an equivalent fire resistance rating to the corridor wall membrane, and either:
    - 2.1. The room-side membrane of the corridor wall extends to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, or
    - 2.2. The building is equipped with an automatic sprinkler system installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, including automatic sprinklers installed in the space between the top of the fire partition and underside of the floor or roof sheathing, deck or slab above.
3. Fire partitions serving as a corridor wall shall be permitted to terminate at the upper membrane of the corridor ceiling assembly where the corridor ceiling is constructed as required for the corridor wall.
4. Fire partitions separating tenant spaces in a covered or open mall building complying with Section 402.4.2.1 shall not be required to extend above the underside of a ceiling. Such ceiling shall not be required to be part of a fire-resistance-rated assembly, and the attic or space above the ceiling at tenant separation walls shall not be required to be subdivided by fire partitions.

Commenter's Reason: The use of the terminology "... provided the corridor ceiling

membrane is equivalent to corridor wall membrane ..." in section 708.4 is ambiguous and will lead to confusion in enforcement. Based on the submittor's supporting statement, we believe that this was intended to be "equivalent" in terms of the fire resistance rating of the membrane in an assembly. Otherwise, this language could be used to install an equivalent thickness, or type of membrane material (e.g. Type X versus regular gypsum board), irrespective of its equivalency, or lack thereof, in terms of fire performance.
This is particulalry important because 708.4 has been revised to include all Group R occupancies. Table 1020.1 requires corridors in Group R occupancies having greater than 10 occupants to have a 0.5 hour fire resistance rating in conjunction with the sprinkler system.

Public Comment 3:

Proponent : Gregory Keith, representing The Boeing Company (grkeith@mac.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

708.1 General. The following wall assemblies shall comply with this section.

1. Separation walls as required by Section 420.2 for ~~Groups~~ Group I-1~~, R-1, R-2~~ and ~~R-3~~ Group R ocupancies.
2. Walls separating tenant spaces in *covered and open mall buildings* as required by Section 402.4.2.1.
3. Corridor walls as required by Section 1020.1.
4. Elevator lobby separation as required by Section 3006.2.
5. Egress balconies as required by Section 1019.2

~~**708.4 Continuity.** Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached thereto. In combustible construction where the *fire partitions* are not required to be continuous to the sheathing, deck or slab, the space between the ceiling and the sheathing, deck or slab above shall be fireblocked or draftstopped in accordance with Sections 718.2 and 718.3 at the partition line. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall supported, except for walls separating tenant spaces in *covered and open mall buildings*, walls separating *dwellingunits*, walls separating *sleeping units* and *corridor* walls, in buildings of Type IIB, IIIB and VB construction.~~

~~**Exceptions:**~~

1. ~~The wall need not be extended into the crawl space below where the floor above the crawl space has a minimum 1-hour *fire-resistance rating*.~~
2. ~~Where the room-side fire-resistance-rated membrane of the *corridor* is carried through to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated~~

~~floor or roof above, the ceiling of the *corridor* shall be permitted to be protected by the use of ceiling materials as required for a 1-hour fire-resistance-rated floor or roof system.~~

~~3. Where the *corridor* ceiling is constructed as required for the *corridor* walls, the walls shall be permitted to terminate at the upper membrane of such ceiling assembly.~~

~~4. The fire partitions separating tenant spaces in a *covered or open mall building*, complying with Section 402.4.2.1, are not required to extend beyond the underside of a ceiling that is not part of a fire-resistance-rated assembly. A wall is not required in *attic* or ceiling spaces above tenant separation walls.~~

1. ~~Attic fireblocking or draftstopping is not required at the partition line in Group R-2 buildings that do not exceed four *storiesabovegrade plane*, provided the *attic* space is subdivided by draftstopping into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.~~

~~2. Fireblocking or draftstopping is not required at the partition line in buildings equipped with an *automatic sprinkler system* installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, provided that automatic sprinklers are installed in combustible floor/ceiling and roof/ceiling spaces.~~

708.4 Support of fire partitions Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below and shall be securely attached thereto.

Exception: Fire partitions shall not be required to extend into a crawl space below where the floor above the crawl space has a minimum 1 hour-fire-resistance rating.

The supporting construction for a fire partition shall have a fire-resistance rating that is equal to or greater than the required fire-resistance rating of the supported fire partition.

Exception: In buildings of Type IIB, IIIB and VB construction, the supporting construction requirement shall not apply to fire partitions separating tenant spaces in covered and open mall buildings, fire partitions separating dwelling units, fire partitions separating sleeping units, and fire partitions serving as a corridor wall.

708.5 Continuity. Fire partitions shall extend vertically to a floor or roof above in accordance with one of the following and shall be securely attached thereto:

1. The underside of a floor/ceiling or roof/ceiling assembly having a fire-resistance rating that is not less than the fire-resistance rating of the fire partition, or
2. The underside of the floor or roof sheathing, deck or slab above of floor or roof consturction not having a fire-resistance rating.

Exceptions:

1. Corridor ceiling construction shall be permitted to be in accordance with one of the following:

1.1 The room-side membrane of the corridor wall shall terminate at the underside of a floor or roof constructed of materials approved for a 1-hour fire-resistance rated floor/ceiling or roof/ceiling assembly. The corridor side membrane of the corridor wall shall terminate at the corridor ceiling membrane constructed of materials approved for a 1-hour fire-resistane rated floor-ceiling or roof-ceiling assembly to include suspended ceilings, dropped ceilings and lay-in roof/ceiling panels, which are a portion of a fire-resistance rated assembly, or

1.2. A corridor ceiling constructed as required for a fire partition wall. When this method is utilized, the corridor-side membrane of the corridor wall shall terminate at the lower ceiling membrane and the room-side membrane of the corridor wall shall terminate at the upper ceiling membrane.

2. Fire partitions separating tenant spaces in a covered or open mall building complying with Section 402.4.2.1 shall not be required to extend above the underside of a ceiling. Such ceiling shall not be required to be part of a fire-resistance rated assembly, and the attic or space above the ceiling at tenant separation walls shall not be required to be subdivided by fire partitions.

708.5.1 Fireblocking and draftstopping in combustible construction. In combustible construction where fire partitions do not extend to the underside of the floor or roof sheathing, deck or slab above, the space above and along the line of the fire partition shall be provided with one of the following:

1. Fireblocking up to the underside of the floor or roof sheathing, deck or slab above using materials complying with 718.2.1, or
2. Draftstopping up to the underside of the floor or roof sheathing, deck or slab above using materials complying with Section 718.3.1 for floors or 718.4.1 for attics.

Exceptions:
1. Buildings equipped with an automatic sprinkler system installed throughout in accordance with Section 903.3.1.1, or in accordance with Section 903.3.1.2 provided that protection is provided in the space between the top of the fire partition and underside of the floor or roof sheathing, deck or slab above as required for systems complying with Section 903.3.1.1.
2. Where corridor walls provide a sleeping unit or dwelling unit separation, draftstopping shall only be required above one of the corridor walls.
3. In Group R-2 occupancies with less than 4 dwelling units, fireblocking and draftstopping shall not be required.
4. In Group R-2 occupancies that do not exceed four stories above grade plane, the attic space shall be subdivided by draftstops into areas not exceeding 3,000 square feet (279 m2) or above every two dwelling units, whichever is smaller.
5. In Group R-3 occupancies with less than 3 dwelling units, fire-blocking and draftstopping shall not be required in floor assemblies. This exception shall

not apply to Group R-4.

718.3 Draftstopping in floors. ~~In combustible construction, draftstopping~~
Draftstopping shall be installed to subdivide floor/ceiling assemblies ~~in the locations prescribed~~ where required by Section 708.5.1. In other than Group R occupancies, draftstopiping shall also be installed to subdivide combustible floor/ceiling assemblies do that horizontal floor areas do not exceed 1000 square feet (93 m^2).

Exception: Buildings equipped throughout with an automatic sprinkler system in ~~Sections 718.3.2 through 718.3.3.~~ accordance with Section 903.3.1.1.

~~**718.3.2 Groups R-1, R-2, R-3 and R-4.** Draftstopping shall be provided in floor/ceiling spaces in Group R-1 buildings, in Group R-2 buildings with three or more *dwellingunits*, in Group R-3 buildings with two *dwellingunits* and in Group R-4 buildings. Draftstopping shall be located above and in line with the *dwellingunit* and *sleeping unit* separations.~~

> ~~**Exceptions:**~~
> ~~1. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~
> ~~2. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers are installed in the combustible concealed spaces where the draftstopping is being omitted.~~

~~**718.3.3 Other groups.** In other groups, draftstopping shall be installed so that horizontal floor areas do not exceed 1,000 square feet (93 m^2).~~

> ~~**Exception:** Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~

718.4 Draftstopping in attics. ~~In combustible construction, draftstopping~~
Draftstopping shall be installed to subdivide *attic* spaces where required by Section 708.5.1. In other than Group R occupancies, draftstopping shall also be installed to subdivide combustible attic spaces and combustible concealed roof spaces ~~in the locations prescribed in Sections 718.4.2 and 718.4.3~~ such that any horizontal area does not exceed 3,000 square feet (279 m2). Ventilation of concealed roof spaces shall be maintained in accordance with Section 1203.2.

Exception: Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

~~**718.4.2 Groups R-1 and R-2.** Draftstopping shall be provided in *attics*, mansards, overhangs or other concealed roof spaces of Group R-2 buildings with three or more *dwellingunits* and in all Group R-1 buildings. Draftstopping shall be installed above, and in line with, *sleeping unit* and *dwellingunit* separation walls that do not extend to the underside of the roof sheathing~~

~~above.~~

~~**Exceptions:**~~

1. ~~Where *corridor* walls provide a *sleeping unit* or *dwellingunit* separation, draftstopping shall only be required above one of the *corridor* walls.~~
2. ~~Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~
2. In occupancies in Group R-2 that do not exceed four ~~*storiesabovegrade plane*, the *attic* space shall be subdivided by *draftstops* into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.~~
3. ~~Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers are installed in the combustible concealed space where the draftstopping is being omitted.~~

~~**718.4.3 Other groups.** Draftstopping shall be installed in *attics* and concealed roof spaces, such that any horizontal area does not exceed 3,000 square feet (279 m^2).~~

~~**Exception:** Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~

1020.1 Construction. *Corridors* shall be fire-resistance rated in accordance with Table 1020.1. The *corridor* walls, floors and ceilings required to be fire-resistance rated shall comply with Section 708 for *fire partitions*.

Exceptions:

1. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group E where each room that is used for instruction has not less than one door opening directly to the exterior and rooms for assembly purposes have not less than one-half of the required *means of egress* doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.
2. A *fire-resistance rating* is not required for *corridors* contained within a *dwelling unit* or *sleeping unit* in an occupancy in Groups I-1 and R.
3. A *fire-resistance rating* is not required for *corridors* in *open parking garages*.
4. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group B that is a space requiring only a single *means of egress* complying with Section 1006.2.
5. *Corridors* adjacent to the *exterior walls* of buildings shall be permitted to have unprotected openings on unrated *exterior walls* where unrated walls are permitted by Table 602 and unprotected openings are permitted by Table 705.8.

Commenter's Reason: FS 42-15 was intended to be an editorial correlation of

current fire partition related technical provisions. The proponent captured the importance of this effort in his cost impact statement. "There will be no impact on the cost of construction other than the cost savings associated with the countless hours of design time that was saved by people who no longer had to study these sections for hours to figure out what was actually required." With their approval as modified, the Fire Safety Code Committee agreed in their reason statement "that the proposal was an editiorial clarification that resulted in better application and enforcement of the provisions."

Section 708.4 is one of the most confusing and misunderstood provisions in the International Building Code. This is primarily owed to the fact that the section is one run-on paragraph that addresses several different technical issues and contains six out of context exceptions. Although FS 42 was a step in the right direction, it was only a partial fix. This public comment is a comprehensive approach towards creating logical and functional fire partition continuity provisions.

It should be noted that this public comment is entirely editiorial in that it makes no technical changes although charging verbiage has been restated to provide necessary clarification. Formerly, Section 708.4 addressed three different tecnical issues in one paragraph. Those were structural support of fire partitions, vertical continuity of fire partitions and fire-blocking and draft-stopping in combustible construction. This public comment segregates those issues through a reorganization of the applicable technical provisions. Additionally, the assorted exceptions have been placed in context with the actual provision that they are intended to modify.

This public comment further improves the initiative taken by FS 42-15 and will considerably improve the functionality of the 2018 Edition of the International Building Code resulting in more consistent interpretation and application of fire partition provisions.

FS42-15

FS43-15 Part I

708.6

Proposed Change as Submitted

Proponent : Robert Davidson, Davidson Code Concepts, LLC, representing SAFTI FIRST (rjd@davidsoncodeconcepts.com)

2015 International Building Code

Revise as follows:

708.6 Openings. Openings in a *fire partition* shall be protected in accordance with Section 716. The total area of the fire-protection-rated glazing in fire door side lights and transoms and in fire window assemblies shall not exceed 25 percent of the area of a common wall with any room.

Reason: The intent of this proposal is to address an anomaly in the current code language. For fire barriers there is a limitation on the total amount of openings permited of any type:

> "707.6 Openings. Openings in a fire barrier shall be protected in accordance with Section 716. Openings shall be limited to a maximum aggregate width of 25 percent of the length of the wall, and the maximum area of any single opening shall not exceed 156 square feet (15 m2). Openings in enclosures for exit access stairways and ramps, interior exit stairways and ramps and exit passageways shall also comply with Sections 1019, 1023.4 and 1024.5, respectively."

In addition to that restriction the code also limits fire-protection-rated glazing to 1 hour or less fire-resistance-rated assemblies. And the amount of fire-protection-rated fire windows in a wall section is further restricted:

> "716.6.7 Interior fire window assemblies. Fire-protection-rated glazing used in fire window assemblies located in fire partitions and fire barriers shall be limited to use in assemblies with a maximum fire-resistance rating of 1 hour in accordance with this section."
>
> > " 716.6.7.2 Area limitations. The total area of the glazing in fire-protection-rated window assemblies shall not exceed 25 percent of the area of a common wall with any room."

The combination of the overall opening limitation in Section 707.6 for fire barriers, and the fire window fire-protection-rated glazing protection requirements in Section 716.6.7 limit the total amount of fire-protection-rated glazing that can be utilized for the purpose of limiting the use of a product that allows radiant heat to go through the protected opening.

However, when you get to the Fire Partition portion of the code there is no overall limitation in openings. The fire-protected-rated fire windows still must comply with the limitations of Section 716.6.7 but what is lost is control of the amount of fire-protection-rated glazing used in fire door sidelights and transoms because there is no overall restriction on the amount of openings which would include the entire fire door assembly. This allows for additional fire-protection-rated glazing and radiant heat transfer beyond the amount restricted by Section 716.6.7.2 for fire windows.

The proposed language is intended to capture fire-protection-rated glazing in fire door sidelites and transoms for appllication of the restriction found at Section 716.6.7.2.

NFPA 80, "Standard for Fire Doors and Other Opening Protectives" includes background on radiant heat concerns in Annex I; the following is an extract of that information:

NFPA 80-2013

"I.1 Background. Fire windows were originally designed for protecting openings in exterior walls. In such applications, radiant heat transfer was not a significant consideration, since the main function of fire windows was to contain the flames within the building. However, where fire windows are used in interior partitions, users of this standard might need to consider radiant heat transfer during fire. Exiting through corridors and past fire windows could be compromised, and combustible materials on the unexposed side of fire windows could be ignited. The information that follows is a guide to the evaluation of radiant heat transfer through fire windows.

Recent revisions to this standard have permitted very large areas of fire protection–rated glazing materials to be used in interior partitions, limited only by the size of the test furnace. Also, recent technological advances in the glazing industry have compounded the problem of radiant heat transfer by making it possible to provide glazing materials with fire protection ratings of 60 minutes and 90 minutes. Historically, fire windows, including glass block, have been limited to a 45-minute rating by the standard fire test, NFPA257, Standard on Fire Test for Window and Glass Block Assemblies. This time limit was predicated on the failure of wired glass at approximately 1600°F (870°C). [1] Some manufacturers also have developed fire resistance–rated glazing assemblies that meet the requirements of a fire resistance–rated wall assembly (currently up to 2 hours). These glazing materials, however, do not transmit excessive radiant heat, since they are re-quired to limit the temperature rise on the unexposed face to 250°F (121°C). "

Cost Impact: Will increase the cost of construction
This proposal could create a minimal increase in the cost of construction by limiting the amount of fire-protection rated glazing in a given common wall in a room.

FS43-15 Part I : 708.6-DAVIDSON5293

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: The committee felt that the proposed language was redundant and already covered in Section 716.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Robert Davidson, Davidson Code concepts, LLC, representing SaftiFirst, Inc. (rjd@davidsoncodeconcepts.com) requests Approve as Submitted.

Commenter's Reason: This public comment is for approved as submitted. The committee's reason for disapproval does not address the issues raised in the original reason statement and floor testimony, i.e., why does the code treat fire barriers, fire partitions and smoke barriers differently concerning the total amount of openings permitted. All three types of barriers are intended to stop the passage of heat and smoke, how effective they are at doing that includes the permitted amount of openings. This is most important when utilizing glazed openings incorporating fire

protection-rated glazing materials which allow passage of radiant heat. NFPA 80 guides the user to consider radiant heat when using fire protection-rated glazing. The requirements of Section 716 address the total amount of fire windows permitted, however, glazing in sidelights and transoms associated with a fire door assembly are not covered by the limitation for fire window provisions because they are defined as part of the door assembly. This does not make technical sense because the code treats them as fire windows for testing purposes in Section 716.5.3.2 by requiring 20-minute door assemblies in smoke barriers and fire partition corridors to have the sidelight and transom tested to NFPA 257, the window test standard.

The total amount of fire protection-rated glazing permitted, including in fire door assemblies, is addressed in fire barriers by the total amount of openings being limited to a maximum aggregate width of 25 percent of the length of the wall. This includes fire door assemblies and fire windows.

The proposed changes target the fire protection-rated glazing in the sidelights and transoms only, adding language to limit of the total amount of glazed openings to the 25% of the area of a common wall with any room. The new language does not affect or create limits for the doors themselves. The proposed changes will correlate the amount of permitted fire protection-rated glazing in the three types of fire rated assemblies since the passage of radiant heat through the barriers presents the same level of hazard in all three cases and the glazing is being tested as fire window fire protection-rated glazing.

FS43-15 Part I

FS43-15 Part II

709.5, 716.6.7

Proposed Change as Submitted

Proponent : Robert Davidson, Davidson Code Concepts, LLC, representing SAFTI FIRST (rjd@davidsoncodeconcepts.com)

2015 International Building Code

Revise as follows:

709.5 Openings. Openings in a *smoke barrier* shall be protected in accordance with Section 716. The total area of the fire-protection-rated glazing in fire door side lights and transoms and in fire window assemblies shall not exceed 25 percent of the area of a common wall with any room.

Exceptions:

1. In Group I-1 Condition 2, Group I-2 and ambulatory care facilities, where a pair of opposite-swinging doors are installed across a corridor in accordance with Section 709.5.1, the doors shall not be required to be protected in accordance with Section 716. The doors shall be close fitting within operational tolerances, and shall not have a center mullion or undercuts in excess of $^{3}/_{4}$ inch (19.1 mm), louvers or grilles. The doors shall have head and jamb stops, and astragals or rabbets at meeting edges. Where permitted by the door manufacturer's listing, positive-latching devices are not required.
2. In Group I-1 Condition 2, Group I-2 and *ambulatory care facilities*, horizontal sliding doors installed in accordance with Section 1010.1.4.3 and protected in accordance with Section 716.

716.6.7 Interior fire window assemblies. Fire-protection-rated glazing used in *fire window assemblies* located in *fire partitions, smoke barriers* and *fire barriers* shall be limited to use in assemblies with a maximum *fire-resistance rating* of 1 hour in accordance with this section.

Reason: The intent of this proposal is to address an anomaly in the current code language. For fire barriers there is a limitation on the total amount of openings permited of any type:

> "707.6 Openings. Openings in a fire barrier shall be protected in accordance with Section 716. Openings shall be limited to a maximum aggregate width of 25 percent of the length of the wall, and the maximum area of any single opening shall not exceed 156 square feet (15 m2). Openings in enclosures for exit access stairways and ramps, interior exit stairways and ramps and exit passageways shall also comply with Sections 1019, 1023.4 and 1024.5, respectively."

In addition to that restriction the code also limits fire-protection-rated glazing to 1 hour or less fire-resistance-rated assemblies. And the amount of fire-protection-rated fire windows in a wall section is further restricted:

> "716.6.7 Interior fire window assemblies. Fire-protection-rated glazing used in fire window assemblies located in fire partitions and fire barriers shall be limited to use in assemblies with a maximum fire-resistance rating of 1 hour in

accordance with this section."

" 716.6.7.2 Area limitations. The total area of the glazing in fire-protection-rated window assemblies shall not exceed 25 percent of the area of a common wall with any room."

The combination of the overall opening limitation in Section 707.6 for fire barriers, and the fire window fire-protection-rated glazing protection requirements in Section 716.6.7 limit the total amount of fire-protection-rated glazing that can be utilized for the purpose of limiting the use of a product that allows radiant heat to go through the protected opening.

However, when you get to the Smoke Barrier portion of the code there is no overall limitation in openings. The fire-protected-rated fire windows still must comply with the limitations of Section 716.6.7 but what is lost is control of the amount of fire-protection-rated glazing used in fire door sidelights and transoms because there is no overall restriction on the amount of openings which would include the entire fire door assembly. This allows for additional fire-protection-rated glazing and radiant heat transfer beyond the amount restricted by Section 716.6.7.2 for fire windows.

The proposed language at 709.5 and 716.6.7 is intended to capture fire-protection-rated glazing in fire door sidelites and transoms for appllication of the restriction found at Section 716.6.7.2 and clarify the fire window application to smoke barriers.

NFPA 80, "Standard for Fire Doors and Other Opening Protectives" includes background on radiant heat concerns in Annex I; the following is an extract of that information:

NFPA 80-2013

"I.1 Background. Fire windows were originally designed for protecting openings in exterior walls. In such applications, radiant heat transfer was not a significant consideration, since the main function of fire windows was to contain the flames within the building. However, where fire windows are used in interior partitions, users of this standard might need to consider radiant heat transfer during fire. Exiting through corridors and past fire windows could be compromised, and combustible materials on the unexposed side of fire windows could be ignited. The information that follows is a guide to the evaluation of radiant heat transfer through fire windows.

Recent revisions to this standard have permitted very large areas of fire protection–rated glazing materials to be used in interior partitions, limited only by the size of the test furnace. Also, recent technological advances in the glazing industry have compounded the problem of radiant heat transfer by making it possible to provide glazing materials with fire protection ratings of 60 minutes and 90 minutes. Historically, fire windows, including glass block, have been limited to a 45-minute rating by the standard fire test, NFPA257, Standard on Fire Test for Window and Glass Block Assemblies. This time limit was predicated on the failure of wired glass at approximately 1600°F (870°C). [1] Some manufacturers also have developed fire resistance–rated glazing assemblies that meet the requirements of a fire resistance–rated wall assembly (currently up to 2 hours). These glazing materials, however, do not transmit excessive radiant heat, since they are re-quired to limit the temperature rise on the unexposed face to 250°F (121°C). "

Cost Impact: Will increase the cost of construction
This proposal could create a minimal increase in the cost of construction by limiting the amount of fire-protection rated glazing in a given common wall in a room.

FS43-15 Part II : 709.5-DAVIDSON5296

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: The committee felt that the protection provisions provided in Section 716 adequately covered the concerns brought up by the proponent.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Robert Davidson, Davidson Code Concepts, LLC, representing SaftiFirst, Inc. (rjd@davidsoncodeconcepts.com) requests Approve as Submitted.

Commenter's Reason: This public comment is for approved as submitted. The committee's reason for disapproval does not address the issues raised in the original reason statement and floor testimony, i.e., why does the code treat fire barriers, fire partitions and smoke barriers differently concerning the total amount of openings permitted. All three types of barriers are intended to stop the passage of heat and smoke, how effective they are at doing that includes the permitted amount of openings. This is most important when utilizing glazed openings incorporating fire protection-rated glazing materials which allow passage of radiant heat. NFPA 80 guides the user to consider radiant heat when using fire protection-rated glazing. The requirements of Section 716 address the total amount of fire windows permitted, however, glazing in sidelights and transoms associated with a fire door assembly are not covered by the limitation for fire window provisions because they are defined as part of the door assembly. This does not make technical sense because the code treats them as fire windows for testing purposes in Section 716.5.3.2 by requiring 20-minute door assemblies in smoke barriers and fire partition corridors to have the sidelight and transom tested to NFPA 257, the window test standard.

The total amount of fire protection-rated glazing permitted, including in fire door assemblies, is addressed in fire barriers by the total amount of openings being limited to a maximum aggregate width of 25 percent of the length of the wall. This includes fire door assemblies and fire windows.

The proposed changes target the fire protection-rated glazing in the sidelights and transoms only, adding language to limit of the total amount of glazed openings to the 25% of the area of a common wall with any room. The new language does not affect or create limits for the doors themselves. The proposed changes will correlate the amount of permitted fire protection-rated glazing in the three types of fire rated assemblies since the passage of radiant heat through the barriers presents the same level of hazard in all three cases and the glazing is being tested as fire window fire protection-rated glazing.

FS43-15 Part II

FS46-15
712.1.10.1

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Revise as follows:

712.1.10.1 Automobile ramps. Vertical openings for automobile ramps in~~ open and enclosed~~ parking garages shall be permitted where constructed in accordance with Sections 406.5 and 406.6~~, respectively~~.

Reason: The current language in the code is redundant and confusing. The new language allows openings that may be used for other purposes including occupant mobility.

Cost Impact: Will not increase the cost of construction
This change should reduce the cost of construction as it will clarify how openings are permitted in floors of parking garages.

FS46-15 : 712.1.10.1-COLLINS4479

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The committee agreed that the current language in the code is redundant and confusing and that the new language allows openings that may be used for other purposes including occupant mobility.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

402.4.1.3 Parking garage. The *building area* and *building height* of any parking garage~~, open or enclosed~~, shall be based on the type of construction as required by Sections 406.5 and 406.6, respectively.

402.4.2.3 Parking garages. An attached garage for the storage of passenger vehicles having a capacity of not more than nine persons and *open parking garages* shall be considered as a separate building where it is

separated from the *covered or open mall building* or *anchor building* by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

Parking garages~~, open or enclosed,~~ which are separated from *covered mall buildings*, *open mall buildings* or *anchor buildings,* shall comply with the provisions of Table 602.

Pedestrian walkways and tunnels that connect garages to *mall* buildings or *anchor buildings* shall be constructed in accordance with Section 3104.

704.9 Impact protection. Where the fire protective covering of a structural member is subject to impact damage from moving vehicles, the handling of merchandise or other activity, the fire protective covering shall be protected by corner guards or by a substantial jacket of metal or other noncombustible material to a height adequate to provide full protection, but not less than 5 feet (1524 mm) from the finished floor.

> **Exception:** Corner protection is not required on concrete columns in ~~open or enclosed~~ parking garages.

712.1.10 Parking garages. Vertical openings in parking garages for automobile ramps, elevators and duct systems shall comply with Section 712.1.10.1, 712.1.10.2 or 712.1.10.3, as applicable.

712.1.10.1 Automobile ramps. Vertical openings for automobile ramps in ~~open and enclosed~~ parking garages shall be permitted where constructed in accordance with Sections 406.5 and 406.6, respectively.

712.1.10.2 Elevators. Vertical openings for elevator hoistways in ~~open or enclosed~~ parking garages that serve only the parking garage, and complying with Sections 406.5 and 406.6, respectively, shall be permitted.

712.1.10.3 Duct systems. Vertical openings for mechanical exhaust or supply duct systems in ~~open or enclosed~~ parking garages complying with Sections 406.5 and 406.6, respectively, shall be permitted to be unenclosed where such duct system is contained within and serves only the parking garage.

715.1 General. Joints installed in or between fire-resistance-rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved *fire-resistant joint system* designed to resist the passage of fire for a time period not less than the required *fire-resistance rating* of the wall, floor or roof in or between which the system is installed. *Fire-resistant joint systems* shall be tested in accordance with Section 715.3.

> **Exception:** *Fire-resistant joint systems* shall not be required for joints in all of the following locations:
>
> 1. Floors within a single *dwelling unit*.
> 2. Floors where the joint is protected by a shaft enclosure in accordance with Section 713.
> 3. Floors within atriums where the space adjacent to the atrium is included in the volume of the atrium for smoke control purposes.
> 4. Floors within malls.
> 5. Floors and ramps within ~~open and enclosed~~ parking garages or structures constructed in accordance with

Sections 406.5 and 406.6, ~~respectively.~~

6. Mezzanine floors.
7. Walls that are permitted to have unprotected openings.
8. Roofs where openings are permitted.
9. Control joints not exceeding a maximum width of 0.625 inch (15.9 mm) and tested in accordance with ASTM E 119 or UL 263.

722.2.2.1 Reinforced and prestressed floors and roofs. The minimum thicknesses of reinforced and prestressed concrete floor or roof slabs for *fire-resistance ratings* of 1 hour to 4 hours are shown in Table 722.2.2.1.

> **Exception:** Minimum thickness shall not be required for floors and ramps within ~~open and enclosed~~ parking garages constructed in accordance with Sections 406.5 and 406.6, ~~respectively~~.

[P] 2902.3 Employee and public toilet facilities. Customers, patrons and visitors shall be provided with public toilet facilities in structures and tenant spaces intended for public utilization. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 2902.1 for all users. Employees shall be provided with toilet facilities in all occupancies. Employee toilet facilities shall be either separate or combined employee and public toilet facilities.

> **Exception:** Public toilet facilities shall not be required in:
>
> 1. ~~Open or enclosed~~ Parking garages where there are no parking attendants.
> 2. Structures and tenant spaces intended for quick transactions, including takeout, pickup and drop-off, having a public access area less than or equal to 300 square feet (28 m^2).

Commenter's Reason: Reason statement: The original FS 46-15 proposal is an editorial change, cleaning up language referring to *parking garages* that was leftover from previous code changes. The code originally stated just "*open*" parking garages before "*enclosed*" was later added. For these sections of the code, those two distinctions to "(public) *parking garages*" are no longer needed.

FS46-15

FS49-15
713.8.2 (New)

Proposed Change as Submitted

Proponent : Matthew Davy, representing Arup (matt.davy@arup.com)

2015 International Building Code

713.8 Penetrations. Penetrations in a shaft enclosure shall be protected in accordance with Section 714 as required for *fire barriers*. Structural elements, such as beams or joists, where protected in accordance with Section 714 shall be permitted to penetrate a shaft enclosure.

713.8.1 Prohibited penetrations. Penetrations other than those necessary for the purpose of the shaft shall not be permitted in shaft enclosures.

Add new text as follows:

713.8.2 Membrane penetrations Membrane penetrations shall be permitted on the outside of shaft enclosures. Such penetrations shall be protected in accordance with Section 714.3.2.

Reason: The purpose of Section 713.8 and 713.8.1 is to limit through penetrations into a shaft enclosure; however, membrane penetrations should be permitted on the outside of the shaft enclosure. As currently written, an electrical box is not permitted on the outside of the shaft enclosure. This section needs to clarify the intent of Section 713.8.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction since it will allow membrane penetrations in shaft enclosures without the need for additional construction/material on the outside of the shaft enclosure. Also, it increases net area for the building.

FS49-15 : 713.8.2 (New)-DAVY5357

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The committee felt this was a good change based on the fact that these membrane penetrations were already allowed in exit passageways and shafts.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Maureen Traxler, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov) requests

Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

713.8.1 Prohibited penetrations. Penetrations other than those necessary for the purpose of the shaft shall not be permitted in shaft enclosures.

> **Exception:** Membrane penetrations shall be permitted on the outside of shaft enclosures. Such penetrations shall be protected in accordance with Section 714.3.2.

~~**713.8.2 Membrane penetrations** Membrane penetrations shall be permitted on the outside of shaft enclosures. Such penetrations shall be protected in accordance with Section 714.3.2.~~

Commenter's Reason: This is an editorial comment that does not change the meaning of the original proposal. The proposed new Section 713.8.2 functions as an exception to the prohibition on penetrations in existing Section 713.8.1.

FS49-15

FS55-15

714.2 (New)

Proposed Change as Submitted

Proponent : William Koffel, representing Firestop Contractors International Association (wkoffel@koffel.com)

2015 International Building Code

Add new text as follows:

714.2 **Installation** A listed through-penetration firestop system shall be securely installed in accordance with the manufacturer's installation instructions and the listing criteria.

Reason: The intent of the paragraph is to require that all listed systems be installed in accordance with the listing critieria (including manufacturer's instructions). The manufacturer's instructions provide additional details that are not commonly identified in the listing criteria, including environmental conditions and tooling.

Cost Impact: Will not increase the cost of construction
Listed systems should already be installed in accordance with the manufacturer's installation instructions.

FS55-15 : 714.2 (New)-KOFFEL5417

Public Hearing Results

Committee Action: Approved as Modified

Modification:

714.2 Installation. A listed ~~through-~~penetration firestop system shall be securely installed in accordance with the manufacturer's installation instructions and the listing criteria.

Committee Reason: The committee agreed that these listed systems needed to be installed in accordance with the manufacturer's installation instructions. The modification ensures this requirement is applicable to all types of listed penetration systems.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jeffrey Shapiro, representing National Multifamily Housing Council (jeff.shapiro@intlcodeconsultants.com) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

714.2 Installation A listed penetration firestop system shall be ~~securely~~ installed in accordance with the manufacturer's installation instructions and the listing criteria.

Commenter's Reason: The word "securely" is vague and subjective. Since the section will require installation in accordance with the manufacturer's instructions, the subject of mounting is adequately covered without the need to add subjective text to the IBC.

FS55-15

FS61-15
714.4.1.2

Proposed Change as Submitted

Proponent : Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

Revise as follows:

714.4.1.2 Through-penetration firestop system. *Through penetrations* shall be protected by an *approvedthrough-penetration firestop system* installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

Exceptions:

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.
2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space ~~of~~ below a ~~horizontal assembly~~ floor do not require a T rating.
3. Floor penetrations of maximum 4-inch (102 mm) nominal diameter penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.

Reason: This proposed change clarifies and potentially expands (depending on interpretation) the existing exception for floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly. The existing language uses the term "horizontal assembly", which is a defined term in the IBC and denotes a fire resistance-rated floor or roof assembly. If the concealed space is part of a floor/ceiling assembly, which is a horizontal assembly that includes the use of a fire-rated ceiling membrane, then the penetration would be concealed behind a fire rated material. If the concealed space referred to in exception No. 2 is simply a floor assembly, which does not incorporate the use of a fire rated membrane, then a penetration that would be concealed would be above a non-rated ceiling. In either case, the horizontal concealed space of a floor/ceiling assembly (with rated membrane) or of a floor assembly (with non-rated ceiling) is comparable in construction and protection, to that of a wall cavity in the current exception for floor penetrations contained and located within the cavity of a wall above the floor or below the floor. In the wall exception (714.4.1.2, Exception 1), the wall concealing the penetration may be either non-rated or fire rated. Thus, the level of protection that the proposed wording would make clear is comparable to that provided in the current exception for penetrations concealed within a wall, and is consistent with the proponent's intent in FS69-09/10 that added Exception No.2 to the IBC.
Floor drains, tub drains and shower drains would never be located such that the pipe penetrating the floor would be within the cavity of a wall. Thus, those drains would not be able to use the existing T-rating exception for walls (Exception No. 1). Many jurisdictions are already interpreting Eception No, 2 to apply the logic of the existing exception for walls, to include the situation of penetrating items concealed above a a non-rated ceiling, as there is some intuitive recognition that the situations really are analogous.

Cost Impact: Will not increase the cost of construction
The proposal expands the exception to include fire-resistance rated floors in which the membrane is not part of the rating.

FS61-15 : 714.4.1.2-CRIMI4303

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that limiting exception 2 to floors inappropriately excludes roof penetrations.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Tony Crimi, representing International Firestop Council requests Approve as Submitted.

Commenter's Reason: The committee reason for Disapproval relates to the fact that this exception is limited to penetrations of floor assemblies, and does not include roofs.
However, penetrations through the top of a roof assembly (not the membrane forming part of a roof assembly) do not normally require a penetration firestop at all. Consequently, it would not be necessary to create an exception to the need for a through-penetration firestop system T-rating for an assembly that does not require firestopping to begin with. This code change is intended to deal only with floor penetrations, so the fact that it does not deal with roof penetrations is not relevant.

Floor drains, tub drains and shower drains would never be located such that the pipe penetrating the floor would be within the cavity of a wall. Thus, those drains would not be able to use the existing T-rating exception for walls (Exception No. 1). Many jurisdictions are already interpreting Eception No, 2 to apply the logic of the existing exception for walls, to include the situation of penetrating items concealed above a a non-rated ceiling, as there is some intuitive recognition that the situations really are analogous.

This proposed change clarifies and potentially expands (depending on interpretation) the existing exception for floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly. The existing language uses the term "horizontal assembly", which is a defined term in the IBC and denotes a fire resistance-rated floor or roof assembly. If the concealed space is part of a floor/ceiling assembly, which is a horizontal assembly that includes the use of a fire-rated ceiling membrane, then the penetration would be concealed behind a fire rated material. If the concealed space referred to in exception No. 2 is simply a floor assembly, which does not incorporate the use of a fire rated membrane, then a penetration that would be concealed would be above a non-rated ceiling. In either case, the horizontal concealed space of a floor/ceiling assembly (with rated membrane) or of a floor assembly (with non-rated ceiling) is comparable in construction and protection, to that of a wall cavity in the current exception for floor penetrations contained and located within the cavity of a wall above the floor or below the floor. In the wall exception (714.4.1.2, Exception 1), the wall concealing the penetration may be either non-rated or fire rated. Thus, the level of protection that the proposed wording would make clear is comparable to that

provided in the current exception for penetrations concealed within a wall, and is consistent with the proponent's intent in FS69-09/10 that added Exception No.2 to the IBC.

FS61-15

FS63-15
714.4.1.2

Proposed Change as Submitted

Proponent : Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Building Code

Revise as follows:

714.4.1.2 Through-penetration firestop system. *Through penetrations* shall be protected by an *approvedthrough-penetration firestop system* installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

Exceptions:

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.
2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly do not require a T rating.
3. Floor penetrations of cable or maximum 4-inch (102 mm) nominal diameter metal conduit or tubing penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.

Reason: In its current form, Exception 3 of Section 714.4.1.2 is incomplete in that it does not specify what is penetrating the floor into the top of the switchgear. The reason statement that was submitted with FS75-12, which led to Exception 3, references "metal EMT or conduit". However, these devices are also wired with cable. As such, this proposal suggests wiring methods which reflect all these options.

Cost Impact: Will not increase the cost of construction
It simply clarifies the current requirements.

FS63-15 : 714.4.1.2-ROBERTS4043

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this item based on the following: No maximum diameter is given for the cable; and no justification has been provided for the metal conduit.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Marilyn Williams, National Electrical Manufacturers Association, representing National Electrical Manufacturers Association requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

714.4.1.2 Through-penetration firestop system. *Through penetrations* shall be protected by an *approvedthrough-penetration firestop system* installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

Exceptions:

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.
2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly do not require a T rating.
3. Floor penetrations of ~~cable or~~ maximum 4-inch (102 mm) nominal diameter metal conduit or tubing penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.

Commenter's Reason: The Committee correctly disapproved this proposal because it was much too broad as written and included "cables" without any substantiation or clarification as to what types of cables. The origina proposal (FS75-12) that was acccepted to create Exception #3 specifically referenced "metallic EMT or conduit" in the reason statement, but the final language omitted this critical provision. This comment corrects the oversight and clarifies the application of the exception.

FS63-15

FS64-15
714.4.1.2

Proposed Change as Submitted

Proponent : Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

714.4.1.2 Through-penetration firestop system. *Through penetrations* shall be protected by an *approvedthrough-penetration firestop system* installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

Exceptions:

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.
2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly do not require a T rating.
3. Floor penetrations of maximum 4-inch (102 mm) nominal diameter penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.
4. <u>Floor penetrations in the parking garages do not require F and T ratings</u>

Reason: It makes no sense to have a large unprotected openings between floors such as vehicle ramps and then a small floor opening next to such ramp to have F and T ratings!!

Cost Impact: Will not increase the cost of construction
This code change will decrease the cost of construction. In order to effectively compartmentalize a fire, a floor must prevent the passage of smoke and flame and also prevent the temperature on the non-fire side from rising high enough to ignite materials stored on non-fire side. To achieve these requirements, certain listed/approved fire stopping assemblies need to be installed; thus the added cost. By adopting this new exception, that requirements goes away and with it the added cost of fire stopping assemblies.

FS64-15 : 714.4.1.2-MAIEL4340

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this item based on the following: There is no limitation on the number of floor penetrations there can be; This should apply only to open parking garages; and this should be rewritten as an exception to the testing rather than to the F and T rating, which is what the testing determines.

Individual Consideration Agenda

Public Comment 1:

Proponent : Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

714.4.1.2 Through-penetration firestop system. *Through penetrations* shall be protected by an *approvedthrough-penetration firestop system* installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

Exceptions:

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.
2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly do not require a T rating.
3. Floor penetrations of maximum 4-inch (102 mm) nominal diameter penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.
4. Floor penetrations in the <u>open</u> parking garages do not require F and T ratings

Commenter's Reason: In Memphis, the committee suggested that this exception should only apply to open parking garages. That concern is addressed in this modification. However, committee's comment on limitations of openings has no basis. As mentioned in the reason section for the original proposal, there is no limit on the floor openings at the auto ramps. Also Section 1019.3, Condition 6, exempts exit access stairways and ramps from having any enclosures in open parking garages. Sections 712.1.10.2 and 712.1.10.3, aslo exempt elevator openings and duct systems from having any enclosure when they are in open and enclosed parking garages. Additionaly, under Section 715.1, Exception 5, fire-resistant joint systems are not required for floors and ramps within open and enclosed parking gargages. So one can have a seismic joint running from one end of the slab to next, penetrated vertically through the slab, with no protection, but a 4-inch pipe penetration should have an F and T rating?

FS64-15

FS65-15
714.4.1.2

Proposed Change as Submitted

Proponent : John Valiulis, Hilti, Inc., representing Hilti, Inc. (john.valiulis@hilti.com)

2015 International Building Code

Revise as follows:

714.4.1.2 Through-penetration firestop system. *Through penetrations* shall be protected by an *approvedthrough-penetration firestop system* installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

Exceptions:

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.
2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly do not require a T rating.
3. Floor penetrations of maximum 4-inch (102 mm) nominal diameter penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.
4. Floor penetrations of a concrete floor by steel, ferrous, or copper conduits, pipes, tubes or vents with a maximum 6-inch (152 mm) nominal diameter, where the area of the opening through the floor does not exceed 144 square inches (92 900 mm^2) if the penetrating item penetrates more than a single floor, do not require a T-rating.

Reason: Overview

This code change aims to rectify the significant inconsistency in performance requirements for floor penetrations of fire rated concrete floor assemblies covered by different code sections. The proposed exception would set equal heat transfer performance expectations for the different code-permitted options for sealing some specific through-penetrations of a concrete floor.

Code requirements when the penetration is firestopped

The most common code-compliant way of firestopping a though-penetration of a fire resistance rated floor assembly is to protect the penetration in accordance with a tested through-penetration firestop system, as detailed in 714.4.1.2. Using a tested firestop system will require that the system have an F-rating equal to the rating of the penetrated assembly. The F-rating is a measure of the firestop system's ability to prevent fire passage. In addition, a floor penetration firestop system may also require a T-rating equal to the fire rating of the assembly, unless one of the three T-rating exceptions are met, as enumerated in 714.4.1.2, shown above. The T-rating is a measure of the firestop system's ability to limit temperature rise on the non-fire side of the penetration.

Code requirements when the penetration is sealed with concrete/grout/mortar

The IBC and the legacy codes have allowed an exception to the requirement for an

approved, tested firestop system, under certain strict limitations, as covered in 714.4.1 Exception No. 2. Using Exception No. 2, the prescriptive code allows filling the annular space with full-depth concrete, grout, or mortar, if the penetration meets all of these conditions:
a) Is a steel, ferrous, or copper conduit, pipe, tube or vent
b) Has a maximum 6 inch nominal diameter
c) The area of the opening through the floor does not exceed 144 square inches if the penetrating item penetrates more than a single floor.

The level of fire safety provided by 714.4.1 Exception 2 is found to be lacking by some in the fire protection community, but the fact remains that it is in the 2015 IBC, was in the legacy codes, and has been used for several decades. This code change proposal acknowledges the continued existence of that exception, without commenting on its merits or lack thereof, and aims to make other sections of the code, namely 714.4.1.2, consistent with this exception, assuming that this exception remains in the Code.

Measured performance of penetrations sealed with concrete/grout/mortar

Using 714.4.1 Exception No.2, there is no requirement for the penetration sealing method (concrete, grout or mortar) to restrict the temperature rise of the penetrating item on the non-fire side to less than 325F (i.e. no requirement for a T-rating). A steel or copper penetrating item will in fact get hot quite fast on the non-fire side (above the floor) if sealed with the concrete/grout/mortar solution. A fire test conducted by UL in 2005 (see Reference No. 1) measured the penetrant temperature on the non-fire side (i.e. above the floor) for three separate floor penetrations, sealed with 1) hydraulic cement, 2) grout and 3) mortar. The penetrating items and hole sizes where within the parameters allowed by 714.4.1 Exception No. 2. The fire test exposure was the standard ASTM E119 time-temperature curve, which is the same time-temperature curve used for other required fire resistance ratings required within the IBC. The test demonstrated that for all three penetrations tested, the T-rating limit of 325F temperature rise was exceeded within 17 minutes. Thus, the penetrations sealed with concrete, grout or mortar would be 43 minutes short of achieving even a minimal 1-hour T-rating. This is inconsistent with 714.4.1.2, which requires an approved firestop system to have a T-rating of at least 1 hour, and not less than the required rating of the floor penetrated.

Making the options more consistent in their performance demands

It is this inconsistency that this present code change aims to correct. Under conditions where the Code does not require a penetrating item to maintain any specific maximum temperature rise (T-rating), that same performance requirement (or lack of requirement) should be maintained regardless of the methodology chosen to accomplish the penetration seal. It is not logical to require a tested and listed firestop system to restrict temperature rise to 325F on the non-fire side for 4 times the amount of time that this same temperature rise can be limited by the penetration sealed with concrete grout or mortar. The performance criteria required by any one of a number of code-accepted alternatives should be equivalent, not divergent by a factor of four as in this instance.

Thus, for the very specific and limited applications where the code allows the concrete, grout or mortar solution (i.e. 6 inch copper or steel penetrant, with maximum hole size 144 sq. in. where penetrating item penetrates more than one floor), the T-rating should not be required when a tested and listed firestop system is used. The proposed new exception would not diminish the tested and proven ability of the firestop system to resist the passage of fire, as expressed by the F-rating, which still must equal the fire resistance rating of the penetrated assembly.

The words used for the proposed new exception are the same words used in 714.4.1 Exception No. 2 to describe the penetrating items that fall under that exception. This provides consistency not only of intent but also of verbiage between the two methodologies.

Establishing consistent temperature transmittal (T-rating) performance requirements between the concrete/grout/mortar solution, and the firestop solution, will have the

advantage of allowing design and installation professionals to make a better, objective choice between the options. This change allows non-fire performance objectives of the penetration and fire safety to be considered without any other bias. For example, firestop systems can allow for movement of the penetrating item (depending on the firestop system selected), can provide a hermetic, water-tight seal, and would prevent the corrosion issues that are known to exist (depending on pipe and concrete composition) when a metallic pipe is cemented into a floor.

Bibliography: 1. "Fact-finding investigation of through-penetrations sealed with hydraulic cement, grout , or mortar", Underwriters' Laboratories, File R22102, Project 05CA06187, 2005

Cost Impact: Will not increase the cost of construction
The proposed new exception does not add any new requirements. Rather, under the specified conditions, it makes the option of using a tested and listed solution a more practical and therefore likely less expensive option that would be consistent with the level of heat transfer (T-rating) allowed for the prescriptive solution specified in 714.4.1 Exception 2.

FS65-15 : 714.4.1.2-VALIULIS5542

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this item based on the following: Basing the proposal on an alternative to a code recognized method that has questionable temperature rise performance (steel pipe) is not appropriate; the language should more closely match exception number 2 of Section 714.4.1.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Goldhammer, Hilti, representing Hilti (edward.goldhammer@hilti.com) requests Approve as Submitted.

Commenter's Reason: Approve as submitted based on the proponents reason statement. In addition, the committee disapproved the code change proposal based on two concerns addressed as follows:

1. *The committee noted the language should more closely match the language from Section 714.4.1 exception No. 2.*
   Response: The proponent agrees the language should closely match, that is why the language as stated in the original proposal was taken directly from Section 714.4.1 exception No. 2. There is no deviation in type of floor, penetrant, penetrant maximum size, or maximum area of opening. A copy of the language from Section 714.4.1 Exception No. 2 is noted as reference. "*Penetrations in a single concrete floor by steel, ferrous or copper conduits, pipes, tubes or vents with a maximum 6-inch (152 mm) nominal diameter, provided the concrete, grout or mortar is installed the full thickness of the floor or the thickness required to maintain the fire-resistance rating. The penetrating items shall not be limited to the penetration of a single concrete floor, provided the area of the opening through each floor does not exceed 144 square inches (92 900 mm2).*" It is important to match the language of

this exception as this proposal is intended to establish consistent temperature transmittal (T-rating) performance requirements between the concrete/grout/mortar solution and the firestop solution. This provides consistency not only of intent but also of verbiage between the two methodologies.

2. *The committee suggested it was not appropriate to base a proposal on an alternative to a code recognized method that has questionable temperature rise performance (steel pipe).*
   Response: The prescriptive language allows the user a very specific application exception using a specific type of penetrant, penetrant size, and size of opening in a concrete floor. This methodology and code language has been used for several decades in both the legacy codes and IBC. The committee re-affirmed this methodology by disapproving FS 60-15 which would have only allowed the exception to occur within the cavity of a wall. There is nothing submitted that is suggesting a reduction in fire safety. The intended proposal is to allow a firestopping solution consistent in the performance demands of the concrete/grout/mortar exception.

FS65-15

FS68-15
715.1

Proposed Change as Submitted

Proponent : Paul Coats, PE CBO, representing American Wood Council (pcoats@awc.org)

2015 International Building Code

Revise as follows:

715.1 General. Where *joints* are provided to accommodate openings that are created due to building tolerances, or are designed to allow independent movement of the building in any plane caused by thermal, seismic, wind, or any other loading, they shall be protected in accordance with this section. Joints installed in or between fire-resistance-rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved *fire-resistant joint system* designed to resist the passage of fire for a time period not less than the required *fire-resistance rating* of the wall, floor or roof in or between which the system is installed. *Fire-resistant joint systems* shall be tested in accordance with Section 715.3.

Exception: *Fire-resistant joint systems* shall not be required for joints in all of the following locations:

1. Floors within a single *dwelling unit*.
2. Floors where the joint is protected by a shaft enclosure in accordance with Section 713.
3. Floors within atriums where the space adjacent to the atrium is included in the volume of the atrium for smoke control purposes.
4. Floors within malls.
5. Floors and ramps within open and enclosed parking garages or structures constructed in accordance with Sections 406.5 and 406.6, respectively.
6. Mezzanine floors.
7. Walls that are permitted to have unprotected openings.
8. Roofs where openings are permitted.
9. Control joints not exceeding a maximum width of 0.625 inch (15.9 mm) and tested in accordance with ASTM E 119 or UL 263.

Reason: This proposal is editorial in nature and makes no change to the current requirements. The proposed wording comes directly from the current definition of Joint in Chapter 2: "Joint. The opening in or between adjacent assemblies that is created due to building tolerances, or is designed to allow independent movement of the building in any plan caused by thermal, seismic, wind or any other loading." Inserting the definition of "joint" here will preclude confusion with other common uses of the term. The purpose of Section 715 is to maintain fire resistance in and between assemblies where spaces are intentionally provided to allow movement of building elements. Where such space is not needed nor provided, such as in platform frame construction, there is no requirement for a fire resistance rated joint system between fire resistance rated assemblies. The proposed wording will clarify the application.

Additional information about this proposal may be posted at

Cost Impact: Will not increase the cost of construction
This will have no impact on the cost of construction.The cost impact of this proposal will be zero since it is a clarification of current requirements and is editorial in nature.

FS68-15 : 715.1-COATS4011

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that it was confusing and redundant to place a definition within a code section.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Paul Coats, PE CBO, representing American Wood Council (pcoats@awc.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

715.1 General. Where~~*joints* are provided to accommodate openings that~~ spaces in or between fire resistance rated assemblies are created due to building tolerances, or are ~~designed~~ provided in the design to allow independent movement of the building in any plane caused by thermal, seismic, wind, or any other loading, they shall be considered joints as defined in Chapter 2 and protected in accordance with this section. Joints installed in or between fire-resistance-rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved *fire-resistant joint system* designed to resist the passage of fire for a time period not less than the required *fire-resistance rating* of the wall, floor or roof in or between which the system is installed. *Fire-resistant joint systems* shall be tested in accordance with Section 715.3.

Exception: *Fire-resistant joint systems* shall not be required for joints in all of the following locations:

1. Floors within a single *dwelling unit*.
2. Floors where the joint is protected by a shaft enclosure in accordance with Section 713.
3. Floors within atriums where the space adjacent to the atrium is included in the volume of the atrium for smoke control purposes.
4. Floors within malls.
5. Floors and ramps within open and enclosed parking garages or structures constructed in accordance with

Sections 406.5 and 406.6, respectively.

6. Mezzanine floors.
7. Walls that are permitted to have unprotected openings.
8. Roofs where openings are permitted.
9. Control joints not exceeding a maximum width of 0.625 inch (15.9 mm) and tested in accordance with ASTM E 119 or UL 263.

Commenter's Reason: The modification more clearly reflects the intent of the proposal and the original intent of the existing fire resistance rated joint provisions. It draws on the Chapter 2 definition that is applicable to fire resistance rated joints, without repeating it. As with the original proposal, the current code text remains unchanged except for the addition of the first sentence to clarify the intent.
The change is critical because current text is sometimes interpreted to require a fire resistance rated joint at all intersections of rated assemblies, regardless of design. Structural connections that are tight to each other and do not permit movement, such as typical wall/floor intersections in typical platform construction, do not require tested fire resistance rated joint systems.

FS68-15

FS81-15

Table 716.5, 716.5.5, 716.5.5.1, 716.5.8.1.2

Proposed Change as Submitted

Proponent : Tom Zaremba, representing Alliance of Fire Rated Glazing Manufacturers (tzaremba@ralaw.com)

2015 International Building Code

Revise as follows:

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	See Note b	D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	See Note b	D-H-W-180	Not Permitted	3	Not Permitted	W-180
	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-T-90 or D-H-W-90	Not Permitted	2	Not Permitted	W-120
	$1^1/_2$	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-T-90 or D-H-W-90	Not Permitted	$1^1/_2$	Not Permitted	W-90
Enclosures for shafts, interior exit stairways and interior exit ramps.	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 > 100 sq. in.= D-H-T-90 or D-H-T-W-90	Not Permitted	2	Not Permitted	W-120
Horizontal exits in fire	4	3	100 sq. in.	≤100 sq. in. = D-H-180 >	Not Permitted	4	Not Permitted	W-240

				100 sq. in.=D-H-W-240				
walls[e]	3	3[a]	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-180	Not Permitted	3	Not Permitted	W-180
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures forshafts,exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls	1	1	100 sq. in.[c]	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-T-60or D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
					Fire protection			
Other fire barriers	1	$^3/_4$	Maximum size tested	D-H	$^3/_4$		D-H	
Fire partitions: Corridor walls	1	$^1/_3$[b]	Maximum size tested	D-20	$^3/_4$[b]		D-H-OH-45	
	0.5	$^1/_3$[b]	Maximum size tested	D-20	$^1/_3$		D-H-OH-20	
Other fire partitions	1	$^3/_4$	Maximum size tested	D-H-45	$^3/_4$		D-H-45	
	0.5	$^1/_3$	Maximum size tested	D-H-20	$^1/_3$		D-H-20	

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING	MINIMUM FIRE DOOR AND FIRE	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)	FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL

	(hours)	SHUTTER ASSEMBLY RATING (hours)		VISION PANEL[d]				
					Fire protection	Fire resistance	Fire protection	Fire resistance
Exterior walls	3	$1^1/_2$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	$1^1/_2$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
					Fire protection			
	1	$^3/_4$	Maximum size tested	D-H-45	$^3/_4$		D-H-45	
Smoke barriers					**Fire protection**			
	1	$^1/_3$	Maximum size tested	D-20	$^3/_4$		D-H-OH-45	

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of $1^1/_2$ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

716.5.5 Doors in interior exit stairways and ramps and exit passageways. *Fire door* assemblies in interior exit stairways and ramps and exit passageways shall have a maximum transmitted temperature rise of not more than 450°F (250°C) above ambient at the end of 30 minutes of standard fire test exposure.

> ~~**Exception:** The maximum transmitted temperature rise is not required in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.~~

716.5.5.1 Glazing in doors. ~~Fire-protection-rated~~
Fire rated glazing ~~in excess of 100 square inches (0.065 m²) is not permitted. Fire-resistance-rated glazing in excess of 100 square inches (0.065 m²)~~ shall be permitted in ~~door~~ *fire doors in accordance with Table 716.5*. Listed ~~fire-resistance-rated~~ fire rated glazing in a fire door shall have a maximum transmitted temperature rise in accordance with Section 716.5.5 when the fire door is tested in accordance with NFPA 252, UL 10B or UL 10C.

Exception: The maximum transmitted temperature rise is not required in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

716.5.8.1.2 Fire-protection-rated glazing in door assemblies in fire walls and fire barriers rated greater than 1 hour. Fire-protection-rated glazing shall be prohibited in *fire walls* and *fire barriers* except in temperature rise doors in

fire walls and fire barriers rated 2 hours or less that comply with Section 716.5.5.1, or as provided in Sections 716.5.8.1.2.1 and 716.5.8.1.2.2.

Reason: The code currently imposes unwarranted barriers to the use of fire-protection rated glazings in sizes greater than 100 sq.in. that, while not fire-resistance rated, are capable of blocking the passage of heat to enable a fire door tested to NFPA 252 (or UL 10B or UL 10C) to meet the 450º F temperature rise limitation found in Section 716.5.5 ("temperature rise doors").
The modifications proposed here are intended to permit the use of fire-protection rated glazing in sizes larger than 100 sq.in. if, and only if, the fire doors in which it is installed meets the 450º F temperature rise limitation found in Section 716.5.5.

The term "fire-rated glazing" is defined in Ch. 2 of the IBC to include both fire-protection rated and fire-resistance rated glazing. The proposed modification to Section 716.5.5.1, takes advantage of that definition to, simply, allow any "fire-rated glazing," whether fire-protection rated or fire-resistance rated, in temperature rise doors so long as it complies with the temperature rise restrictions of Section 716.5.5.

Consistent with this proposed change to Section 716.5.5.1, Table 716.5 is modified to permit complying fire-protection rated glazings found in temperature rise doors to be marked "D-H-T-xxx" (along with fire-resistance rated glazings found in temperature rise doors that are already being marked "D-H-W-xxx"). Likewise, Section 716.5.8.1.2 is also modified to accomodate the use of fire-protection rated glazings in temperature rise doors found in fire walls and fire barriers rated 2 hours or less.

Finally, the sprinklered building "exception" to Section 716.5.5 is moved to the end of the section, simply, to clarify that it applies to all of Section 716.5.5, including Section 716.5.5.1.

Cost Impact: Will not increase the cost of construction
Currently, only fire-resistance rated glazings are permitted in sizes greater than 100 sq.in. in temperature rise doors. Fire-resistance rated glazing is heavier and more expensive than fire-protection rated glazing. Allowing properly tested, listed and labeled fire-protection rated glazings in temperature rise doors will reduce the weight and the cost of such doors. Allowing fire-protection rated glazings in these applications will reduce, rather than increase, the cost of construction.

FS81-15 : T716.5.5-ZAREMBA4757

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee disapproved this item based on the following: No technical justification provided dealing with radiant heat transfer of fire-protection-rated glazing in these door assemblies; and the testing required has no thermocouple requirements for the unexposed surface.

Assembly Action **:** None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Tom Zaremba, representing Alliance of Primary Fire Rated Glazing Manufacturers (tzaremba@ralaw.com) requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Building Code

716.5.5 Doors in interior exit stairways and ramps and exit passageways. *Fire door* assemblies in interior exit stairways and ramps and exit passageways shall have a maximum transmitted temperature rise of not more than 450°F (250°C) above ambient at the end of 30 minutes of standard fire test exposure

Exception: The maximum transmitted temperature rise is not required in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

Commenter's Reason: FS81-15 should be approved as modified by this Public Comment.
In support of the proposed modification:

In the original proposal, the exception to Section 716.5.5 was deleted and relocated to follow Section 716.5.5.1. The ***ONLY*** modification being proposed in this public comment is to restore the excepion to Section 716.5.5.1 that was deleted from the original proposal. The sole purpose of the modification is to clarify the applicability of the exception to both Sections 716.5.5 and 716.5.5.1.

In support of the Public Comment:

Currently, in temperature rise doors required by IBC Section 716.5.5, if the glazing exceeds a 100 sq.in. view panel, ***only fire-resistance glazings*** are allowed pursuant to IBC Section 716.5.5.1. The intent of FS81-15 is to permit the option of using ***either*** fire-resistance rated glazings, ***or***, fire-protection rated glazings that are allowed, listed and labeled for use in such temperature rise doors.

The Committee gave two reasons for disapproving FS81-15. Both are demonstrably wrong.

The first reason advanced by the Committee is a lack of "technical justification ... dealing with "radiant heat transfer of fire-protection-rated glazing in these door assemblies...." This is, simply, wrong. Strong technical justification has been presented in support of FS81-15.

Strong technical justification supporting FS81-15 exists in the fact that ***there arealreadyfire-protection rated glazings,*** in sizes larger than 100 sq. in., that have been tested and are approved, listed and labeled to meet the temperature rise door requirements of IBC Section 716.5.5. Several ***fire-***

protection rated products listed by UL for use in temperature rise doors include Keralite ® Ultra 45, 60, 90 and 180, manufactured by Vetrotech Saint-Gobain. All of these products are either made in the U.S. or are readily available in the U.S.

IBC Section 716.5 clearly provides: "Approved *fire door* and fire shutter assemblies shall be constructed of ***any*** material or assembly of component materials that conforms to the test requirements of Section 716.5.1, 716.5.2 or 716.5.3 and the *fire protection rating* indicated in Table 716.5." Accordingly, the IBC is blind to the type of products used and may only ask whether they conform to applicable test requirements and fire protection ratings. If they do, IBC Section 716.5 says that they ***shall*** be permitted. Since it is beyond question that approved ***fire-protection rated*** glazings now exist that conform, by testing, to the fire protection ratings and temperature rise requirements of IBC Section 716.5.5 in sizes greater than 100 sq.in., there, simply, is ***no*** justification for the IBC to preclude their use.

In concluding that FS81-15 lacked "technical justification," the Committee inappropriately ignored the fact that approved, listed and labeled fire-protection rated products exist that meet the temperature rise door requirements of IBC Section 716.5.5.

The second reason advanced by the Committee claims that "the testing required has no thermocouple requirements for the unexposed surface." This, too, is demonstrably, wrong.

Fire doors are tested to NFPA 252 (see, IBC Sections 716.5.1, 716.5.2, 716.5.3 and Table 716.3). NFPA 252, Section 4.3, entitled "Unexposed Surface Temperatures," provides that: "Temperatures of the unexposed surface of the fire door shall be recorded during the first 30 minutes of the fire test and shall be determined in accordance with 4.3.1 through 4.3.3." In turn, NFPA 252, in Sections 4.3.1 through 4.3.3, specifies the number, attachment, and other details of thermocouple use to measure thermal transfer through the fire door during the first 30 minutes of the fire test.

The Committee inappropriately concluded that the "testing" of fire-protection rated glazing used in temperature rise doors "has no thermocouple requirements for the unexposed surface." In doing so, the Committee, simply, ignored the fact that NFPA 252 contains detailed requirements for thermocouple testing of the unexposed surface of fire-protection rated glazing used in temperature rise doors.

We urge you to vote against the standing motion to disapprove FS81-15 and to vote in favor of adopting FS81-15 as modified by this public comment in order to end the completely artificial and inappropriate barrier the IBC currently imposes on the use of approved fire-protection rated glazing that is tested, listed and labeled in full compliance with the temperature rise door requirements of IBC Section 716.5.5.

FS81-15

FS83-15

Table 716.5, 716.5.8.1.2, 716.5.8.1.2.1, 716.5.8.1.2.2

Proposed Change as Submitted

Proponent : Tom Zaremba, Roetzel & Andress, representing Alliance of Fire Rated Glazing Manufacturers (tzaremba@ralaw.com)

2015 International Building Code

Revise as follows:

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	100 sq. in. ~~See Note b~~	≤100 sq. in. = D-H-180 >100 sq. in.= D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	100sq. in. ~~See Note b~~	≤100 sq. in. = D-H-180 >100 sq. in.= D-H-W-180	Not Permitted	3	Not Permitted	W-180
	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	$1^1/_2$	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90	Not Permitted	$1^1/_2$	Not Permitted	W-90
Enclosures for shafts, interior exit stairways and interior exit ramps.	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 > 100 sq. in.=D-H-T-W-90	Not Permitted	2	Not Permitted	W-120

Horizontal exits in fire walls[e]	4	3	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-180	Not Permitted	3	Not Permitted	W-180
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures forshafts,exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls	1	1	100 sq. in.[c]	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
					Fire protection			
Other fire barriers	1	$^3/_4$	Maximum size tested	D-H	$^3/_4$		D-H	
Fire partitions: Corridor walls	1	$^1/_3$[b]	Maximum size tested	D-20	$^3/_4$[b]		D-H-OH-45	
	0.5	$^1/_3$[b]	Maximum size tested	D-20	$^1/_3$		D-H-OH-20	
Other fire partitions	1	$^3/_4$	Maximum size tested	D-H-45	$^3/_4$		D-H-45	
	0.5	$^1/_3$	Maximum size tested	D-H-20	$^1/_3$		D-H-20	

TYPE OF	REQUIRED	MINIMUM	DOOR	FIRE-RATED	MINIMUM SIDELIGHT/	FIRE-RATED GLAZING

ASSEMBLY	WALL ASSEMBLY RATING (hours)	FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	VISION PANEL SIZE[b]	GLAZING MARKING DOOR VISION PANEL[d]	TRANSOM ASSEMBLY RATING (hours)		MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Exterior walls	3	$1^1/_2$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	$1^1/_2$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
					Fire protection			
	1	$^3/_4$	Maximum size tested	D-H-45	$^3/_4$		D-H-45	
Smoke barriers					**Fire protection**			
	1	$^1/_3$	Maximum size tested	D-20	$^3/_4$		D-H-OH-45	

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of $1^1/_2$ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

716.5.8.1.2 Fire-protection-rated glazing in door assemblies in fire walls and fire barriers rated greater than 1 hour. Fire-protection-rated glazing shall be ~~prohibited~~ permitted in *fire walls* and *fire barriers* ~~except~~ as provided in Sections 716.5.8.1.2.1 and 716.5.8.1.2.2.

716.5.8.1.2.1 ~~Horizontal exits.~~Fire walls Fire-protection-rated glazing shall be permitted ~~as vision panels~~ in*self-closing* swinging*fire door*doors ~~assemblies serving as horizontal exits~~ in *fire walls* where limited to 100 square inches (0.065 m^2) ~~with no dimension exceeding 10 inches (0.3 mm)~~.

716.5.8.1.2.2 Fire barriers. Fire-protection-rated glazing shall be permitted in *fire doors* ~~having a $1^1/_2$-hour *fire protection rating*~~ intended for installation in *fire barriers*, where limited to 100 square inches (0.065 m^2).

Reason: The code currently prohibits the use of fire-protection rated glazing as vision panels in 3-hour fire doors permitted in 3 and 4-hour fire walls and fire barriers. There are numerous fire-protection rated glazing products listed as 100 sq. in. vision panels for use in 3-hour fire doors. The code currently allows fire-resistance rated glazing in these doors in unlimited size. Nothing in this proposal would change that. Instead, adopting this proposal would also permit the use of fire-protection rated glazing, but limited in size to 100 sq. in. While fire-resistance rated glazing offers protection against thermal transfer, it will do so be becoming opaque. Fire-protection rated glazing, on the other hand, will remain

transparent, enabling fire fighters and first responders to see what is on the other side of the fire door, while at the same time limiting thermal transfer by reason of the 100 sq. in. size limitation associated with its use.

Adopting this proposal will provide architect/specifiers with significantly greater flexibility with no loss of safety. Currently, if the architect/specifier determines, for whatever reason, that the use of fire-resistance rated glazing in these applications is inappropriate, the only other choice would be to use a fire door with no view panel. If this proposal is adopted, a 100 sq. in. view panel would be an available option using listed and labeled fire-protection rated glass.

Consitent with changes to Section 716.5.8.1.2, Table 716.5 would also be changed to limit "door and vision panel size" to 100 sq. in. where fire-protection rated glazing is used in fire walls and fire barriers where 3-hour fie door and fire shutter assemblies are allowed. This would allow glazings in these applications to be marked either "D-H-180" when fire-protection rated glazing is used in 3 or 4 hour fire-resistance rated walls - or - "D-H-W-240" when fire-resistance rated glazing is used in 4-hour fire-resistance walls and "D-H-W-180" when used in 3-hour fire-resistance rated walls.

Cost Impact: Will not increase the cost of construction
Permitting the use of fire-protection glazing will reduce, not increase, the cost of construction. Fire-protection rated glazing is lighter and less expensive than fire-resistance rated glazing.

FS83-15 : T716.5.8.1.2-ZAREMBA5366

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this item based on the following: No technical justification was provided dealing with radiant heat transfer of fire-protection-rated glazing in these applications.

Assembly Action :

None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Tom Zaremba, representing Alliance of Primary Fire Rated Glazing Manufacturers (tzaremba@ralaw.com) requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Building Code

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	~~100 sq. in.~~See note b	~~≤100 sq. in. = D-H-180 >100 sq. in.~~= D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	100sq. in.	≤100 sq. in. = D-H-180 >100 sq. in.= D-H-W-180	Not Permitted	3	Not Permitted	W-180

	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	$1^1/_2$	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90	Not Permitted	$1^1/_2$	Not Permitted	W-90
Enclosures for shafts, interior exit stairways and interior exit ramps.	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 > 100 sq. in.=D-H-T-W-90	Not Permitted	2	Not Permitted	W-120
Horizontal exits in fire walls[e]	4	3	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-180	Not Permitted	3	Not Permitted	W-180
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures forshafts,exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls	1	1	100 sq. in.[c]	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
					Fire protection			

Other fire barriers	1	$^3/_4$	Maximum size tested	D-H	$^3/_4$	D-H
Fire partitions: Corridor walls	1	$^1/_3$[b]	Maximum size tested	D-20	$^3/_4$[b]	D-H-OH-45
	0.5	$^1/_3$[b]	Maximum size tested	D-20	$^1/_3$	D-H-OH-20
Other fire partitions	1	$^3/_4$	Maximum size tested	D-H-45	$^3/_4$	D-H-45
	0.5	$^1/_3$	Maximum size tested	D-H-20	$^1/_3$	D-H-20

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of $1^1/_2$ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

716.5.8.1.2.1 Fire walls Fire-protection-rated glazing shall be permitted in *fire doors* in *fire walls* having a fire-resistance rating of 3-hours or less where limited to 100 square inches (0.065 m^2).

716.5.8.1.2.2 Fire barriers. Fire-protection-rated glazing shall be permitted in *fire doors* intended for installation in *fire barriers having a fire-resistance rating of 3-hours or less*, where limited to 100 square inches (0.065 m^2).

Commenter's Reason: The Committee's vote on FS83-15 was initially a tie. The tie was broken by the Chair in favor of disapproval. This Public Comment proposes a modification intended to resolve the issue raised by the Committee that likely resulted in the tie vote being broken in favor of disapproval.

Originally, FS83-15 proposed to permit the use of 3-hour fire protection rated glazing in 100 sq. in. vision panels in fire doors used in 3-hour ***and*** 4-hour fire walls and fire barriers. This was proposed as an alternative to either using fire-resistance rated glazing as currently permitted by the code, or having a solid door, with no view at all to the other side of the door.

The stated reason given for the Committee's action disapproving FS83-15 was that "no technical justification was provided dealing with radiant heat transfer of fire-protection-rated glazing in these applications." However, during the hearing, it was evident that the Committee's concern focused on the use of fire-protection rated glazing in 4-hour fire walls and fire barriers. Both will be addressed below.

First, this Public Comment proposes a modification of FS83-15 to address the Committee's concern with the application of this proposal to 4-hour fire walls and barriers. In that regard, the modification submitted with this Public Comment proposes to leave 4-hour fire walls and fire barriers ***unchanged*** and to ***only*** apply FS83-15 as modified by this Public Comment to 3-hour fire walls and fire barriers.

Second, strong technical justification exists for the adoption of FS83-15 as modified. In that regard, the stated concern of the Committee is "radiant heat transfer" involved when fire-protection rated glazings are used. However, FS83-15 does, in fact, address the transfer of radiant heat. In that regard, as modified, FS83-15 would limit the use of fire-protection rated glazing to 100 sq.in. view panels in fire doors used in 3-hour fire walls and barriers. This limitation in size presents a generally accepted methodology for limiting the transfer of radiant heat. This is evident from the fact that ***both*** NFPA 80 and NFPA 101 permit the use of 100 sq.in. fire-protection rated view panels in 3-hour fire doors in 3-hour fire walls and barriers. (*See,* NFPA 80, Sections 4.4.4 and 4.4.5 and Table 4.4.5. See also*,* NFPA 101 Table 8.3.4.2.)

The advantages of allowing the use of 100 sq.in. view panels in fire doors used in 3-hour fire walls and fire barriers are significant

First, if adopted, FS83-15 would only allow the use of fire-protection rated glazing as an ***alternative*** to the use of fire-resistance rated glazing in these doors. No change will be made to anything currently allowed by the code.

Second, while fire-resistance rated glazing is currently allowed in unlimited sizes, it controls thermal transfer by going opaque. Fire-protection rated view panels will, on the other hand, remain completely ***transparent*** throughout the full course of a fire. This means that in a fire, building occupants exiting the building and first responders entering the building will be able to use these vision panels to see what is on the other side of these doors throughout the fire event.

Moreover, the only current alternative to the use of fire-resistance rated glazings in these doors are solid, opaque doors that must be opened to find out what is on the other side. While first responders may be trained to feel whether the door is hot before opening it, lay building occupants have no such training and, without a way to see what is on the other side, they are likely to open a fire door only to face the risk of fire, backdraft or flashover from the other side.

Third, adopting FS83-15 will eliminate a conflict that currently exists with NFPA 80, which already allows the use of 100 sq.in. fire-protection rated view panels in 3-hour fire doors. It will also harmonize the requirements of the IBC with NFPA 101 which also allows the use of fire-protection rated view panels in 3-hour fire doors in 3-hour fire walls and barriers.

Finally, having view panels in these doors provides a margin of "opening door safety" in both fire and non-fire events. In that regard, doors with view panels enable those using them to see others approaching from the other side. Without view panels, opening an opaque door into someone approaching from the other side can result in unnecessary injury.

For all these reasons, we urge you to vote against the standing motion to disapprove FS83-15 and to vote in favor a motion to approve FS83-15 as modified in this Public Comment.

FS83-15

FS84-15

Table 716.5

Proposed Change as Submitted

Proponent : Amber Armstrong, City of Edmond (Oklahoma), representing self (amber.armstrong@edmondok.com)

2015 International Building Code

Revise as follows:

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	See Note b	D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	See Note b	D-H-W-180	Not Permitted	3	Not Permitted	W-180
	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	$1^1/_2$	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90	Not Permitted	$1^1/_2$	Not Permitted	W-90
Fire walls having a required fire-resistance rating of 1 hour	1	1	100 sq. in.	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-W-60	Not Permitted	1	Not Permitted	W-60
Enclosures for shafts, interior exit stairways and	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 > 100 sq. in.=D-	Not Permitted	2	Not Permitted	W-120

interior exit ramps.				H-T-W-90				
Horizontal exits in fire walls[e]	4	3	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-180	Not Permitted	3	Not Permitted	W-180
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures forshafts,exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls	1	1	100 sq. in.[c]	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
					Fire protection			
Other fire barriers	1	$^{3}/_{4}$	Maximum size tested	D-H	$^{3}/_{4}$		D-H	
Fire partitions: Corridor walls	1	$^{1}/_{3}$[b]	Maximum size tested	D-20	$^{3}/_{4}$[b]		D-H-OH-45	
	0.5	$^{1}/_{3}$[b]	Maximum size tested	D-20	$^{1}/_{3}$		D-H-OH-20	
Other fire	1	$^{3}/_{4}$	Maximum size tested	D-H-45	$^{3}/_{4}$		D-H-45	

partitions	0.5	$^{1}/_{3}$	Maximum size tested	D-H-20	$^{1}/_{3}$	D-H-20

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Exterior walls	3	$1^{1}/_{2}$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	$1^{1}/_{2}$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
					Fire protection			
	1	$^{3}/_{4}$	Maximum size tested	D-H-45	$^{3}/_{4}$		D-H-45	
Smoke barriers					**Fire protection**			
	1	$^{1}/_{3}$	Maximum size tested	D-20	$^{3}/_{4}$		D-H-OH-45	

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of $1^{1}/_{2}$ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

Reason: This code change is intended to provide requirements for opening protection assemblies in 1-hour fire walls.
According to IBC Section 706.2, "fire walls designed and constructed in accordance with NFPA 221 shall be deemed to comply with this section." In NFPA 221 2015 edition, requirements for a specific type of fire wall called a Double Fire Wall are detailed. A Double Fire Wall consists of two walls, parallel to each other which have no connections between them and are independently supported by structural elements on either side. According to Section 4.5 and Table 4.5, when each wall of a double fire wall assembly is supported by structural elements which have a fire-resistance rating less than that required for the wall, the fire-resistance rating of each wall may be reduced by one hour.

For example, a building is required to be divided by a 2-hour fire wall. The designer chooses to construct two walls, back-to-back as opposed to a single fire wall. Each wall is supported by a structural frame which does not have a fire-resistance rating. Per NFPA 221, Table 4.5, each wall of

the double fire wall assembly is permitted to have a fire-resistance rating of 1-hour. NFPA 221 Section 6.10.3 requires that openings in each wall which comprises the double fire wall be protected separately. Neither NFPA 221~~, Table 4.8.2~~nor IBC Table 716.5 list the opening requirements for a 1-hour fire wall.

There are many conditions when construction of two independent walls is a more desirable option than a single fire wall. Openings between the "separate" buildings are common. With no direction on a fire-resistance rating for that opening protection, the designer does not know what to provide, and the code official must determine the appropriate rating. This decision is subjective based on each code official and will not be consistent from jurisdiction to jurisdiction.

Cost Impact: Will not increase the cost of construction
This change will not increase the cost of construction because the fire-resistance rating of 60-minutes is less than the minimum stated for any fire wall.

FS84-15 : T716.5-ARMSTRONG5679

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee thought that this was a good concept, but would prefer that the table relate to a specific double wall allowance rather than calling it a fire wall.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Amber Armstrong, representing self requests Approve as Submitted.**

Commenter's Reason: As stated in the reason statement for FS84-15, NFPA 221 allows for a fire wall to be constructed of two parallel walls and further allows for the fire-resistance rating of each wall to be lower than the required rating of the fire wall. This is part of the double wall assembly in Section 4.5. Whether a single wall or a double wall assembly, the walls are still fire walls and NFPA 221 Section 4.5/Table 4.5 allows a 2-hour fire wall to be constructed of two 1-hour fire resistance rated walls (if they meet certain criteria).
If the fire wall was required to be 3-hours, it could be built of two 2-hour fire resistance rated walls according to NFPA 221. The requirements for the opening fire protection rating in each of those 2-hour walls is found in Table 716.5 on the row named "Fire wall and fire barriers having a required fire resistance rating greater than 1-hour." More specifically, the row for the required wall assembly rating of 2-hours.

What is lacking in the table is the requirements for each wall of a double wall assembly constructed of two 1-hour fire resistance rated walls.

If the issue with FS84-15 is that it does not address the double wall assembly, then the appropriate fix would be to create a new set of rows for single walls which make up the double wall assembly for each of the possible fire resistance ratings. However, that would become more confusing because the double wall assembly fire wall does not exist in the IBC.

In conclusion, each wall of a double wall assembly meeting the requirements in NFPA 221 are still fire walls and FS84-15 adds requirements for the opening fire protection assembly for 1-hour fire resistance rated walls, which is not addressed.

Please overturn the committee and approve FS84-15 as submitted.

Public Comment 2:

Proponent : **Amber Armstrong, representing self requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Building Code

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING	MINIMUM FIRE DOOR AND FIRE	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)	FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL

	(hours)	SHUTTER ASSEMBLY RATING (hours)		VISION PANEL[d]				
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	See Note b	D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	See Note b	D-H-W-180	Not Permitted	3	Not Permitted	W-180
	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	$1^1/_2$	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90	Not Permitted	$1^1/_2$	Not Permitted	W-90
Fire walls having a required fire-resistance rating of 1 hour[f]	1	1	100 sq. in.	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-W-60	Not Permitted	1	Not Permitted	W-60
Enclosures for shafts, interior exit stairways and interior exit ramps.	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 > 100 sq. in.=D-H-T-W-90	Not Permitted	2	Not Permitted	W-120
Horizontal exits in fire walls[e]	4	3	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-180	Not Permitted	3	Not Permitted	W-180
Fire barriers having a	1	1	100 sq. in.[c]	≤100 sq. in. = D-H-60	Not Permitted	1	Not Permitted	W-60

required fire-resistance rating of 1 hour: Enclosures forshafts,exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls				>100 sq. in.= D-H-T-W-60				
					Fire protection			
Other fire barriers	1	$^3/_4$	Maximum size tested	D-H	$^3/_4$		D-H	
Fire partitions: Corridor walls	1	$^1/_3$[b]	Maximum size tested	D-20	$^3/_4$[b]		D-H-OH-45	
	0.5	$^1/_3$[b]	Maximum size tested	D-20	$^1/_3$		D-H-OH-20	
Other fire partitions	1	$^3/_4$	Maximum size tested	D-H-45	$^3/_4$		D-H-45	
	0.5	$^1/_3$	Maximum size tested	D-H-20	$^1/_3$		D-H-20	

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of $1^1/_2$ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

f. Individual 1-hour fire resistance rated walls as a part of a double wall assembly fire wall meeting the requirements of NFPA 221.

Commenter's Reason: The committee felt that because there is no such thing as a 1-hour fire wall in the IBC, FS84-15 should be modified to identify that the 1-hour fire resistance wall was part of a double wall assembly. This public comment creates a footnote to Table 716.5 which clarifies the distinction.

FS84-15

FS89-15

716.5.3.1.1 (New)

Proposed Change as Submitted

Proponent : John Woestman, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Add new text as follows:

716.5.3.1.1 Terminated stops. On doors required by this code to be smoke and draft control doors, stops on door frames shall be permitted to terminate not more than 6" above the floor.

> **Exception:** Section 716.5.3.1.1 shall not apply to smoke and draft control doors required by Sections 3006.3, 3007.6.3, and 3008.6.3.

Reason: Many doors installed in hollow metal frames in health care facilities have terminated stops. These terminated stops are also known as "hospital stops" or "sanitary stops." A terminated stop is a factory modification to a door frame, where the stop is terminated above the floor. The bottom of the stop is closed at a 45-degree or 90-degree angle. The purpose of a terminated stop is to make it easier to clean that area of the floor without the extra corners to catch debris or pathogens, and to avoid getting cart or bed wheels caught on the stop.
The code is silent regarding terminated stops. This proposal provides guidance where terminated stops would be allowed, and not allowed, by the code. This proposal is consistent with the testing requirements of UL 1784.

Cost Impact: Will not increase the cost of construction
No mandatory costs. Door frames with terminated stops may have a slight increase in cost compared to door frames with full length stops. However, installation of door frames with terminated stops is optional.

FS89-15 : 716.5.3.1.1 (New)-WOESTMAN5522

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this item based on the following: Consider limiting this to I occupancies as indicated in the reason statement; and consider making the exception the charging text and the charging text the exception.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : John Woestman, Kellen, representing Builders Hardware Manufacturers Association (jwoestman@kellencompany.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

Terminated stops. Factory modification to a door frame where the stops of the door frame are terminated not more than 6" from the bottom of the door frame. Terminated stops are also known as "hospital stops" or "sanitary stops".

716.5.3.1.1 Terminated stops. On doors required by ~~this code~~ Sections 3006.3.(3), 3007.6.3, or 3008.6.3 to be smoke and draft control doors, terminated stops on the door frames shall not be permitted ~~to terminate not more than 6" above the floor.~~ .

> ~~**Exception:** Section 716.5.3.1.1 shall not apply to smoke and draft control doors required by Sections 3006.3, 3007.6.3, and 3008.6.3.~~

Commenter's Reason: Addressing the committee comments, the code today is silent regarding terminated stops and does not prohibit the use of door frames with terminated stops. Interior door frames in many buildings have terminated stops, especially – but not only in – health care facilities. Some interior door frames in business occupancies, and other occupancies, may also have terminated stops. This Public Comment takes a different approach from the original proposal to provide guidance where terminated stops would not be allowed.

Unfortunately, the IBC currently does not include an important requirement that door assemblies required to meet the testing requirements of UL1784 when tested without an artificial bottom seal, as required in 3006.3.(3), 3007.6.3, or 3008.6.3,

should not be permitted to use door frames with terminated stops. For other smoke and draft control door assemblies required to be tested to UL1784, this proposal is consistent with the testing requirements of UL 1784.

Terminated stops are a factory modification to a door frame, where the stops are terminated above the floor. The bottom of the stop is closed at a 45-degree or 90-degree angle. The purpose of terminated stops is to make it easier to clean that area of the floor without the extra corners to catch debris or pathogens, and to avoid getting moveable items caught on the stop. Terminated stops are also known as "hospital stops" or "sanitary stops."

FS89-15

FS96-15
716.5.9.4

Proposed Change as Submitted

Proponent : Joseph Hetzel, representing Door & Access Systems Manufacturers Association (Jhetzel@thomasamc.com)

2015 International Building Code

Revise as follows:

716.5.9.4 Doors in pedestrian ways. ~~Vertical sliding~~ Sliding or ~~vertical~~ rolling steel *fire doors* in openings through which pedestrians travel shall be heat activated or activated by smoke detectors with alarm verification.

Reason: Sliding fire doors can operate horizontally, thus the "vertical" descriptor is not needed because it is too limiting. Rolling steel fire doors always operate vertically by definition, so the "vertical" descriptor is redundant and unnecessary.

Cost Impact: Will not increase the cost of construction
None.The language change has no effect on the product and thus no effect on construction cost, thus no study is needed.

FS96-15 : 716.5.9.4-HETZEL3420

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that inherent safety issues related to vertical operation of these doors is cause enough to leave the term "vertical" in this section.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Joseph Hetzel, representing Door & Access Systems Manufacturers Association (Jhetzel@thomasamc.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

716.5.9.4 Doors in pedestrian ways. ~~Sliding~~ Vertical sliding fire doors or rolling steel *fire doors* in openings through which pedestrians travel shall be heat activated or activated by smoke detectors with alarm verification.

Commenter's Reason: The "vertical" descriptor for sliding fire doors should be kept. Vertical sliding fire doors and rolling steel fire doors should be editorially separated, since rolling steel fire doors always operate vertically by definition and

thus the "vertical" descriptor for those doors is redundant and unnecessary.

FS96-15

FS102-15 Part I

202 (New), 717 (New), 717.1 (New), 717.2 (New), 717.3 (New), 721.1.17 (New), Chapter 35

Proposed Change as Submitted

Proponent : Stephen Thomas, Colorado Code Consulting, LLC, representing Smoke Guard (sthomas@coloradocode.net)

NOTE: PART III DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART III IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART II.

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

FIRE CURTAIN. A flexible membrane assembly constructed of materials designed to restrict the spread of fire when tested in accordance with UL 10D.

Add new text as follows:

SECTION 717 Fire and Smoke Curtains

717.1 General Fire and smoke curtains permitted by other sections of this code shall comply with the provisions of this section.

717.2 Fire Test Criteria Fire and smoke curtains shall be tested in accordance with the requirements of UL 10D.

717.3 Activation Fire and smoke curtains shall comply with the following criteria:

1. Fire and smoke curtains shall be actuated by approved spot-type detectors listed for releasing service.
2. Fire detection systems providing control input or output signals to fire and smoke curtains or elements thereof shall comply with the requirements of Section 907. Such systems shall be equipped with a control unit complying with UL 864 and listed as smoke control equipment.

721.1.17 Fire curtains. Vertical floor openings shall be permitted where protected by a fire curtain in accordance with Section 717. Fire curtains shall achieve a minimum one-hour fire-protection rating, and not less than the assembly being penetrated, but need not exceed 2 hours.

Add new standard(s) as follows:
UL 10D-2014 Standard for Fire Tests of Fire Protective Curtain Assemblies

Reason: This proposal introduces fire curtains into the code to be used in protecting vertical openings. The current code has several different ways to protect these

openings. These curtains have been tested in accordance with UL 10D which is similar to UL 263 without the hose stream test. Horizontal assemblies are not required to pass the hose stream test. Therefore, the standards are similar in how they evaluate the system. This proposal would permit a horizontally deployed curtain that would enclose the vertical floor opening and provide the same protection as the horizontal assembly.

Cost Impact: Will not increase the cost of construction
By installing a horizontal curtain across a floor opening, the need for a smoke control system can be eliminated. Therefore, this proposal will reduce the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, UL 10D, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS102-15 Part I : 717 (New)-THOMAS4504

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following: The scope of UL10 indicates that these systems are "supplemental" only; the proposed definition should not contain requirements by reference to UL10; the definition should reference the entire system that incorporates the fire curtain; the definition is not needed as it is contained in UL10; the defined term is fire curtain but requirements in Section 717 are for fire and smoke curtains, which is inconsistent; and equivalence to other fire resistance rated issues need to be addressed such as hose stream, temperature rise and smoke migration.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Koffel, Koffel Associates, Inc., representing McKeon Door Company (wkoffel@koffel.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

FIRE PROTECTIVE CURTAIN ASSEMBLY. ~~A flexible membrane~~ An assembly ~~constructed~~ typically consisting of ~~materials designed to restrict the spread of fire when tested in accordance with UL 10D.~~ a fabric curtain, bottom bar, guides, coil, operating and closing system.

716.7 Fire protective curtain assembly. Approved fire protective curtain assemblies shall be constructed of any materials or assembly of component materials tested without hose stream in accorance with UL 10B,

UL 10C, or UL 10D, and shall comply with the following.

716.7.1 Label Fire protective curtain assemblies used as opening protectives in fire rated walls and smoke partiitions shall be labeled in accordance with 716.5.7.

716.7.2 Smoke and draft control Fire protective curtain assemblies used to protect openings where smoke and draft control assemblies are required shall comply with 716.5.3.1.

716.7.3 Rating Fire protective curtain assemblies shall be permitted to be used as opening protectives where the required fire protection rating does not exceed 20 minutes, wihout the hose stream test.

~~**717.1 General** Fire and smoke curtains permitted by other sections of this code shall comply with the provisions of this section.~~

~~**717.2 Fire Test Criteria** Fire and smoke curtains shall be tested in accordance with the requirements of UL 10D.~~

~~**717.3 Activation** Fire and smoke curtains shall comply with the following criteria:~~

1. ~~Fire and smoke curtains shall be actuated by approved spot-type detectors listed for releasing service.~~
2. ~~Fire detection systems providing control input or output signals to fire and smoke curtains or elements thereof shall comply with the requirements of Section 907. Such systems shall be equipped with a control unit complying with UL 864 and listed as smoke control equipment.~~

~~SECTION 717 Fire and Smoke Curtains~~

~~**721.1.17 Fire curtains.** Vertical floor openings shall be permitted where protected by a fire curtain in accordance with Section 717. Fire curtains shall achieve a minimum one-hour fire-protection rating, and not less than the assembly being penetrated, but need not exceed 2 hours.~~

Modify standard(s) as follows:
UL 10D-2014 Standard for Fire Tests of Fire Protective Curtain Assemblies

Commenter's Reason: The Committee Action for Disapprovale of all three parts of FS 102-15 was based at least in part on the original proponent's intent to use fabric fire protective curtain assemblies as an opening protective having a one hour fire protection rating and to replace one hour fire barriers. Rated fire protective curtain assemblies cannot resist the passage of heat to achieve a fire resistnace rating equal to a fire barrier or fire partition nor can they perform in accordance with the hose stream test criteria as required by the IBC for opening protectives having a fire protection rating greater than one hour.
UL developed test criteria for fire protective curtain assemblies, UL 10D, and it was published as an ANSI Standard in January, 2014. Section 1.1 of the Scope of UL 10D reads:

These requirements cover the evaluation of fire protective curtain assemblies intended to provide supplemental passive fire protection as part of an engineered fire protection system. Fire protective curtain assemblies provide nonstructural separation only, and are not intended to be substituted for structural hourly rated partitions or openign protectives that have been tested for fire endurance and hose stream performance.

The proposed deifiniton and uses are consistent with NFPA 80-2016 and UL 10D. Existing fire protective curtain assemblies can pass UL 10B, UL 10C, or UL 10D for a fire endurance of 20 minutes without the hose stream test. Some products can also pass UL 1784 for an "S" label. Therefore, the Public Comment proposes applications where approved fire protective curtain assemblies should be permitted consistent wtih NFPA 80, UL 10D, and current provisions of the IBC.

The proposed requirement that the assembly be "approved" in addition to "listed" allows the Code Official to specifically approve the proposed application. We are aware of instances in which such products have been proposed to be used in a means of egress and other applications such as separation of atria. While the proposed language should limit the use in some of the currently known applications, the requirement that the application be "approved" requires specific review and approval by the Code Official.

Rather than create an entire new section in Chapter 7, the Public Comment proposes new materail within Section 716 since fire protective curtain assemblies are truly an opening protective. It should be noted that if FS 101-15 is approved, which significantly reformats the existing Section 716, the references herein can be revised to reflect the content in the newly formated Section 716.

FS102-15 Part I

FS102-15 Part II

404.6, 717 (New), 717.1 (New), 717.2 (New), 717.3 (New), 202 (New), Chapter 35

Proposed Change as Submitted

Proponent : Stephen Thomas, Colorado Code Consulting, LLC, representing Smoke Guard (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

404.6 Enclosure of atriums. *Atrium* spaces shall be separated from adjacent spaces by a 1-hour *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both.

Exceptions:

1. A *fire barrier* is not required where a glass wall forming a smoke partition is provided. The glass wall shall comply with all of the following:
    - 1.1. Automatic sprinklers are provided along both sides of the separation wall and doors, or on the room side only if there is not a walkway on the *atrium* side. The sprinklers shall be located between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and at intervals along the glass not greater than 6 feet (1829 mm). The sprinkler system shall be designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction;
    - 1.2. The glass wall shall be installed in a gasketed frame in a manner that the framing system deflects without breaking (loading) the glass before the sprinkler system operates; and
    - 1.3. Where glass doors are provided in the glass wall, they shall be either *self-closing* or automatic-closing.
2. A *fire barrier* is not required where a glass-block wall assembly complying with Section 2110 and having a $^{3}/_{4}$-hour *fire protection rating* is provided.
3. A *fire barrier* is not required between the *atrium* and the adjoining spaces of any three floors of the *atrium* provided such spaces are accounted for in the design of the smoke control system.
4. <u>A fire barrier is not required between the atrium and the adjoining spaces when a fire curtain having a one-hour fire-protection rating in accordance with Section 717 is installed at the perimeter of the atrium opening. The curtain shall not be placed in such a location as to obstruct the means of egress.</u>

Add new text as follows:

SECTION 717 Fire and Smoke Curtains

717.1 General Fire and smoke curtains permitted by other sections of this code shall comply with the provisions of this section.

717.2 Fire Test Criteria Fire and smoke curtains shall be tested in accordance with the requirements of UL 10D.

717.3 Activation Fire and smoke curtains shall comply with the following criteria:

1. Fire and smoke curtains shall be actuated by approved spot-type detectors listed for releasing service.
2. Fire detection systems providing control input or output signals to fire and smoke curtains or elements thereof shall comply with the requirements of Section 907. Such systems shall be equipped with a control unit complying with UL 864 and listed as smoke control equipment.

Add new definition as follows:

SECTION 202 DEFINITIONS

FIRE CURTAIN A flexible membrane assembly constructed of materials designed to restrict the spread of fire when tested in accordance with UL 10D.

Add new standard(s) as follows:
UL 10D-2014 Standard for Fire Tests of Fire Protective Curtain Assemblies

Reason: Section 404.6 requires that an atrium be separated from other spaces of the building by a one-hour fire barrier. The exceptions to that requirement permit the installation of a non-fire rated assembly in exception 1. ThIS proposal will permit the installation of a fire curtain around the perimeter of the atrium as an additional option. It is our position that a fire curtain provides an equivalent level of protection to glass forming a smoke partition protected by automatic sprinklers outlined in exception 1. In fact, this installation has been approved by many jurisidictions as an equivalent design. The intent of the exception is to provide a smoke separation at the atrium. The proposal is also creating a new section and definition to address the testing and installation requirements for the curtain. UL 10D has been specified as the test standard for the fire curtains. It is similar to other fire-resistance tests with the exception of a hose stream test.

Cost Impact: Will not increase the cost of construction
This change will reduce the cost of construction. It will decrease the volume of the atrium and reduce the cost of the smoke control system in a building.

Analysis: A review of the standard proposed for inclusion in the code, UL 10D, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS102-15 Part II : 717 (New)-THOMAS4498

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following: The proposed definition should not contain requirements by reference to UL10; the definition should reference the entire system that incorporates the fire curtain; the definition is not needed as it is contained in UL10; the defined term is fire curtain but requirements in Section 717 are for fire and smoke curtains, which is inconsistent; equivalence to other fire resistance rated issues need to be addressed such as hose stream, temperature rise and smoke migration; and for horizontal applications in an atrium, sprinkler design needs to be addressed for above and below the curtain.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Stephen Thomas, Colorado Code Consulting, LLC, representing SMoke Guard, Inc. (sthomas@coloradocode.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

~~**FIRE**~~ **FIRE-PROTECTIVE CURTAIN ASSEMBLY** A ~~flexible membrane assembly constructed~~ system inclusive of ~~materials designed~~ the fire-protective curtain and associated components. The system includes, but is not limited to ~~restrict~~ , the ~~spread of fire when tested in accordance with UL 10D~~ fire-protective curtain, storage and deployment unit and the framing and anchoring system.

404.6 Enclosure of atriums. *Atrium* spaces shall be separated from adjacent spaces by a 1-hour *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both.

Exceptions:

1. A *fire barrier* is not required where a glass wall forming a smoke partition is provided. The glass wall shall comply with all of the following:
    1.1. Automatic sprinklers are provided along both sides of the separation wall and doors, or on the room side only if there is not a walkway on the *atrium* side. The sprinklers shall be located between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and at intervals along the glass not greater than 6 feet (1829 mm). The sprinkler system shall be designed so that the entire surface of the glass is wet upon

activation of the sprinkler system without obstruction;

1.2. The glass wall shall be installed in a gasketed frame in a manner that the framing system deflects without breaking (loading) the glass before the sprinkler system operates; and

1.3. Where glass doors are provided in the glass wall, they shall be either *self-closing* or automatic-closing.

2. A *fire barrier* is not required where a glass-block wall assembly complying with Section 2110 and having a $^{3}/_{4}$-hour *fire protection rating* is provided.
3. A *fire barrier* is not required between the *atrium* and the adjoining spaces of any three floors of the *atrium* provided such spaces are accounted for in the design of the smoke control system.
4. A fire barrier is not required ~~between~~ where the atrium ~~and~~ space is separated from the ~~adjoining~~ adjacent spaces ~~when~~ by a fire protective curtain assembly having a one-hour fire-protection rating ~~in accordance with~~ meeting the requirements of Section 717 ~~is installed at the perimeter of the atrium opening. The curtain shall not be placed in such a location as to obstruct the means of egress~~.

SECTION 717 ~~Fire and Smoke Curtains~~ FIRE PROTECTIVE CURTAIN ASSEMBLIES

717.1 General ~~Fire and smoke curtains~~
Fire-protective curtain assemblies permitted by other sections of this code shall comply with the provisions of this section.

717.2 Fire ~~Test Criteria~~ test criteria ~~Fire and smoke curtains~~
Fire-protective curtain assemblies shall be tested in accordance with the requirements of UL 10D.

717.3 Activation ~~Fire and smoke curtains~~ Fire-protective curtain assemblies shall comply with the following criteria:

1. ~~Fire and smoke curtains~~ The curtain assemblies shall be actuated by approved spot-type detectors listed for releasing service~~.~~ , or an engineered smoke control system, and
2. Fire detection systems providing control input or output signals to ~~fire and smoke curtains~~ the curtain assemblies or elements thereof shall comply with the requirements of Section 907. Such systems shall be equipped with a control unit complying with UL 864 and listed as smoke control equipment.

Modify standard(s) as follows:
UL 10D-2014 Standard for Fire Tests of Fire Protective Curtain Assemblies

Commenter's Reason: This public comment addresses the testimony and comments from the committee regarding fire-protected curtain assemblies during the committee hearings. We have removed the reference to UL 10D in the definition. We feel that the definition is necessary in the building code to provide users with a

description of what these types of systems are. The definition is consistent with the UL 10D Standard. The requirements now references the entire system instead of just the curtains as the previous proposal did. We have also revised the language to be consistent with UL 10D throughout the change. The term fire-protective curtain assembly is now consistent in all of the sections.
It is the intent of this proposal to use fire-protective curtain assemblies as an alternative to providing separation between an atrium and adjacent spaces. The current separation of water-washed glass wall does not require any type of fire-resistance rating. It also does not require a hose stream test. The fire-protective curtain will provide the same level of protection than the water-washed glass wall if not better protection since it has a fire-protection rating. The glass wall will not work without the fire sprinklers. A curtain assembly works without the need for additional protection.

Fire-protective curtains provide an additional option for providing separation between the atrium and adjacent spaces. The curtain assemblies can be placed around the atrium opening to reduce the overall size of the atrium. This can then reduce the size and cost of a smoke control system. The curtain assemblies can also be placed in large openings so that the smoke control system does not have to be designed to account for the adjacent spaces. The curtain assemblies have been tested under UL 10D to a two-hour fire protection rating. The proposal requires a one-hour fire protection rating when using the curtain assembly. This rating is a tested assembly versus the current glass wall with sprinkler separation that has never been tested.

FS102-15 Part II

NOTE: PART III DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

FS102-15 Part III

202, 717 (New), 717.1 (New), 717.2 (New), 717.3 (New), 1019.3, Chapter 35

Proposed Change as Submitted

Proponent : Stephen Thomas, Colorado Code Consulting, LLC, representing Smoke Guard (sthomas@coloradocode.net)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

FIRE CURTAIN. A flexible membrane assembly constructed of materials designed to restrict the spread of fire when tested in accordance with UL 10D.

Add new text as follows:

SECTION 717 Fire and Smoke Curtains

717.1 General Fire and smoke curtains permitted by other sections of this code shall comply with the provisions of this section.

717.2 Fire Test Criteria Fire and smoke curtains shall be tested in accordance with the requirements of UL 10D.

717.3 Activation Fire and smoke curtains shall comply with the following criteria:

1. Fire and smoke curtains shall be actuated by approved spot-type detectors listed for releasing service.
2. Fire detection systems providing control input or output signals to fire and smoke curtains or elements thereof shall comply with the requirements of Section 907. Such systems shall be equipped with a control unit complying with UL 864 and listed as smoke control equipment.

Revise as follows:

1019.3 Occupancies other than Groups I-2 and I-3. In other than Group I-2 and I-3 occupancies, floor openings containing *exit access stairways* or *ramps* that do not comply with one of the conditions listed in this section shall be enclosed with a shaft enclosure constructed in accordance with Section 713.

1. *Exit access stairways* and *ramps* that serve or atmospherically communicate between only two stories. Such interconnected stories shall not be open to other stories.
2. In Group R-1, R-2 or R-3 occupancies, *exit accessstairways* and *ramps* connecting four stories or less serving and contained

within an individual *dwelling unit* or *sleeping unit* or *live/work unit.*

3. *Exit access stairways* serving and contained within a Group R-3 congregate residence or a Group R-4 facility are not required to be enclosed.
4. *Exit access stairways* and *ramps* in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the *stairway* or *ramp* and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.
5. *Exit access stairways* and *ramps* within an *atrium* complying with the provisions of Section 404.
6. *Exit access stairways* and *ramps* in *open parking garages* that serve only the parking garage.
7. *Exit access stairways* and *ramps* serving open-air seating complying with the *exit access* travel distance requirements of Section 1029.7.
8. *Exit access stairways* and *ramps* serving the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, *places of religious worship*, auditoriums and sports facilities.
9. Stairways that serve, or atmospherically communicate between a maximum of four stories, and are not part of the required means of egress shall be permitted to be enclosed by a fire curtain installed in accordance with Section 717.

Add new standard(s) as follows:
UL 10D-2014 Standard for Fire Tests of Fire Protective Curtain Assemblies

Reason: This proposal presents a new type of separation requirement for exit access stairways. It introduces the concept of fire curtains into the code and permits their use to enclose exit access stairs that serve a maximum of four stories. Fire curtains are tested to UL 10D which does not include the hose stream test. The intent is to allow an alternative to a full enclosure. The current code permits stairs to be open between adjacent stories without enclosure. This proposal is also consistent with the protection that Exception 4 of Section 1099.3 provides, with the draft curtain and closely spaced sprinklers. In fact, the fire curtain will provide a better level of protection than the 18 inch draft curtains.

Cost Impact: Will not increase the cost of construction
This change provides an alternate to enclosing stairs. Therefore, the cost of construction will not be affected.

Analysis: A review of the standard proposed for inclusion in the code, UL 10D, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS102-15 Part III : 717 (New)-THOMAS4584

Public Hearing Results

Part III

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following: The scope of UL10 indicates that these systems are "supplemental" only; the scope of UL10 indicates that these products are appropriate for 20 minute door assemblies, not for the use described in this proposal; the proposed definition should not contain requirements by reference to UL10; the definition should reference the entire system that incorporates the fire curtain; the definition is not needed as it is contained in UL10; the defined term is fire curtain but requirements in Section 717 are for fire and smoke curtains, which is inconsistent; and equivalence to other fire resistance rated issues need to be addressed such as hose stream, temperature rise and smoke migration.

Assembly Action : None

FS105-15

717.2.1 (IMC 607.2.1), Chapter 35

Proposed Change as Submitted

Proponent : Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

Revise as follows:

717.2.1 Smoke control system. Where the installation of a *fire damper* will interfere with the operation of a required smoke control system in accordance with Section 909, ducts used to supply uncontaminated air shall be protected with a shaft enclosures in accordance with Section 713, or tested in accordance with ASTM E2816-11, with a minimum F and T rating of not less than 2 hours, continuously from the air handling appliance or equipment to the air outlet and inlet terminal, or *approved* alternative protection shall be utilized. Where mechanical systems including ducts and *dampers* utilized for normal building ventilation serve as part of the smoke control system, the expected performance of these systems in smoke control mode shall be addressed in the rational analysis required by Section 909.4.

Add new standard(s) as follows:
ASTM E2816-11, Standard Test Methods for Fire Resistive Metallic HVAC Duct Systems.

Reason: This proposal would require HVAC ducts installed for the purposes of stairwell pressurization to be enclosed within a shaft or protected by a tested and listed assembly conforming to the new ASTM E2816-11, Standard Test Methods for Fire Resistive Metallic HVAC Duct Systems evaluated for the specific purpose. The new ASTM Standard evaluates the HVAC duct systems for surface burning characteristics, non-combustibility, fire resistance, durability, and fire engulfment with horizontal and vertical through-penetration firestops. The Standard can evaluate the fire performance of HVAC ducts for both supply (pressurization) and return air, in the vertical and horizontal orientation, with or without openings. These test methods evaluate the ability of a HVAC duct system to resist the spread of fire from one compartment to another compartment separated by fire resistance rated construction when the HVAC duct system is exposed to fire from the outside of the horizontal or vertical HVAC duct system, or from the outside with hot gases entering the inside of the HVAC duct system from unprotected openings, when subjected to the standard time-temperature curve of ASTM E119. This test is now also referenced as part of ICC-ES AC179, Acceptance Criteria for Metallic HVAC Duct Enclosure Assemblies.

The purpose of these acceptance criteria is to establish requirements for fire protection enclosure systems applied to metallic HVAC ducts, which provides an alternate to required fire-resistance-rated shafts or an alternate to required fire dampers in specific locations. This criteria provides an alternate to shaft enclosures for vertical ducts, and an alternate to fire dampers in horizontal ducts (penetrating fire barriers, fire partitions, and or smoke barriers) and vertical ducts connecting multiple stories. The purpose of a closed pressurization system is to provide fresh air directly to stairwells or egress areas. This design air pressures need to be

sufficient to maintain closed doors while preventing smoke from entering the egress path. Smoke control systems have been required in nearly two thirds of the United States for over a decade. High-rise buildings constructed to the requirements of International Building Code, but without any specific measures to control smoke migration, are all the more vulnerable to property damage and occupants' loss of life.

Pressurization results in airflows of high velocity in the gaps around closed doors and construction cracks, thereby preventing smoke from flowing back into the pressurized space through these openings. Pressurized stairwells are provided with the goal of maintaining a tenable environment within the escape routes in the event of a building fire. While the option to use stairwell pressurization exists, the IBC does not require stairwell pressurization in high-rise buildings, and only requires smoke control in underground buildings, atriums, and covered mall buildings. Section 403.5.4 of the 2012 IBC requires smokeproof exit enclosures for high-rise buildings in every required stairway serving floors more than 75 feet (22.86 m) above the ground. Section 909.20.5 merely permits sprinklered buildings to use stairwell pressurization as an alternate to the smokeproof enclosures. When employed, ducts used for Stair pressurization to provide uncontaminated air within required interior exit stairwells or areas of egress need to be protected from the effect of fire, or constructed as fire resistant systems.

This principle of protecting HVAC ducts used as part of a smoke control system from the effects of fire exposure is already contained in section 909.4 as part of a rational analysis supporting the design of smoke control systems to be employed. Section 909.4.4 requires that the design shall consider the effects of the heating, ventilating and air-conditioning (HVAC) systems on both smoke and fire transport. The analysis must include all permutations of systems status, and the design shall consider the effects of the fire on the HVAC systems.

Particularly in the case of tall buildings, the predominant factors that cause smoke movement are stack effects, the affect of external wind forces, and forced air movement within the building. Smoke removal and venting practices are complicated by stack effects, which will tend to favour natural air movement vertically through the building as a results of differences in temperature and densities between the inside and outside air. [1]

Options such as the use of natural ventilation are only available where openings in exterior stairwells can be accommodated. Even then, a number of problems have been identified with this approach. Firstly, the required volume of fresh air is high. Secondly, natural supply and exhaust through vents may be subject to adverse exterior wind conditions, and even when functioning satisfactorily, would generally require vents located on different exterior walls. Thirdly, the performance of natural vents is influenced by building stack effects, which may be particularly significant on the upper or lowermost stories for tall buildings. This effect can range from either strong inflow or strong outflow from all natural vents on a given storey.[2]

Bibliography: 1. Klote, J.H. and Milke, J.A. Fire Protection Handbook, NFPA 19th Edition, Volume II, Smoke Movement in Buildings, Chapter 6, Section 12-113 –12-126
2. Building Research Establishment, UK, Smoke Ventillation of Common Access Areas of Flats & Maisonettes (BD2410), Final Factual Report, Appendix A (Review), BRE Ltd, 2005

Cost Impact: Will increase the cost of construction
This proposal introduces a neccessary life safety feature that is often overlooked.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E2816, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS105-15 : 717.2.1-CRIMI4313

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following: The referenced standard, ASTM E2816 does not contain fire side survivability criteria. If the duct is compromised, then pressurization would not occur and the system would fail to function as needed; transitions in direction need to be evaluated separately as transitions are not dealt with in the standard - the proposed text should reflect this so a plan reviewer knows to look for evidence of this; this does not appear to be an option, rather a restriction, which more than likely would have cost implications.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

717.2.1 Smoke control system. Where the installation of a *fire damper* will interfere with the operation of a required smoke control system in accordance with Section 909, ducts used to supply uncontaminated air shall be protected with a shaft ~~enclosures~~ enclosure in accordance with Section 713, or tested in accordance with ASTM ~~E2816-11~~ E2816, with a minimum F and T rating of not less than 2 hours, continuously from the air handling appliance or equipment to the air outlet and inlet terminal, or shall utilize *approved* alternative protection ~~shall be utilized~~. Where mechanical systems including ducts and *dampers* utilized for normal building ventilation serve as part of the smoke control system, the expected performance of these systems in smoke control mode shall be addressed in the rational analysis required by Section 909.4.

Modify standard(s) as follows:

Commenter's Reason: During the Code Action Hearings last spring, several issues were raised regarding the ASTM E2816 standard which need to be clarified.

First, the assertions that the ASTM E2816 Standard does not contain "fire side survivability criteria" are not correct. In order to further emphasize this, Committee ASTM E05 has just approved revisions to the E 2816-15 edition of the standard that emphasize this point. Section 5 and 16 of the Standard are being updated to more clearly state that the support system must carry the load of the HVAC duct for the entire duration of the fire engulfment test. The Standard already states the HVAC

duct must retain its integrity during the test (Clause 5.1) and that the support system be capable of carrying the load of the HVAC duct and its fire-resistive material(s) during the entire duration of the standardized fire-engulfment test (Clauses 5.2.2 and 16.4.6).

Similarly, the assertions that transitions in direction are not dealt with in the Standard are also incorrect. Both the vertical and the horizontal test specimen (Duct A and Duct B conditions) require at least one joint on the fire side, one joint located on the unexposed side, one straight section, one "T" section, and one 90-degree elbow (with an end cap) to be evaluated as part of the tested specimen (Clauses 7.4.5.1 and 7.4.5.2).

This Standard does evaluate the fire performance of HVAC ducts for both supply (pressurization) and return air, in the vertical and horizontal orientation, with or without openings, joints and connections. It should be noted that this proposal applies to cases where fire dampers cannot be installed because they will interfere with the operation of the smoke control system. The ASTM E2816 test method evaluates the ability of an HVAC duct system to resist the spread of fire from one compartment to another compartment separated by fire resistance rated construction when the HVAC duct system is exposed to fire from the outside of the horizontal or vertical HVAC duct system, or from the outside with hot gases entering the inside of the HVAC duct system from unprotected openings, when subjected to the standard time-temperature curve of ASTM E119.

FS105-15

FS106-15

717.2.3 (New) [IMC 607.2.3 (New)]

Proposed Change as Submitted

Proponent : Rebecca Baker, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (bbaker@co.jefferson.co.us)

2015 International Building Code

Add new text as follows:

717.2.3 Smoke damper location. Smoke damper blades in the closed position shall be located at or adjacent to but not more than 24 inches away from the smoke barrier or partition penetration. There shall be no inlets or outlets between the damper and the smoke barrier.

Reason: This user friendly language is found in all smoke damper installation instructions that few in the industry are aware of. This language will aid in understanding the flexibility associated with property location requirements for installers, designers and inspectors. These requirements can be found in Greenheck, Ruskin, Pottorff and all the other manufactureres instructions. One of the problems is UL 555-S only requires that one set of instructions be furnished *per shipment* of dampers and are rarely available for those who may need them in the field. This is consistent with NFPA 90.A

Cost Impact: Will not increase the cost of construction
This new section calls out the existing requirement in the code rather than the manufacturers information, which is often not readily available. By having the requirement, which increases flexibility, easier to find the new code section may actually reduce costs.

FS106-15 : 717.2.3 (New)-BAKER3332

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following: These requirements should not be in the code as they are part of the manufacturer's individual product listing; and how to measure the 24 inches in relation to the smoke barrier or partition penetration needs to be clarified. The committee suggested providing a public comment that addressed the 24 inch measurement

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Guy McMann, Jefferson County Co., representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us) requests Approve as Modified by

this Public Comment.

Modify as Follows:

2015 International Building Code

717.2.3 Smoke damper location. Smoke damper blades in the closed position shall be located at or ~~adjacent~~ parallel to but not more than 24 inches away from the smoke barrier or partition penetration. There shall be no inlets or outlets between the damper and the smoke barrier.

Commenter's Reason: The committee suggested that the position of the damper blades as it relates to the penetration be clarified. As a result the word "adjacent" was removed. Although this little known requirement is in the manufacturers instructions, many are unaware that this damper can be located outside of the wall. The problem is the instructions are difficult to come by for inspectors as only one set is provided for a shipment of many dampers. Knowing this application is available will aid all who use this Section.

FS106-15

FS112-15
717.5.2 (IMC 607.5.2)

Proposed Change as Submitted

Proponent : James Peterkin, representing Self (jpeterki@heery.com)

2015 International Building Code

Revise as follows:

717.5.2 Fire barriers. Ducts and air transfer openings of *fire barriers* shall be protected with *approved fire dampers* installed in accordance with their listing. Ducts and air transfer openings shall not penetrate enclosures for *interior exit* stairways and ramps and exit passageways, except as permitted by Sections 1023.5 and 1024.6, respectively.

Exception: *Fire dampers* are not required at penetrations of *fire barriers* where any of the following apply:

1. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
2. Ducts are used as part of an *approved* smoke control system in accordance with Section 909 and where the use of a *fire damper* would interfere with the operation of a smoke control system.
3. Such walls are penetrated by fully ducted HVAC systems, have a required *fire-resistance rating* of 1 hour or less, are in areas of other than Group H and are in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a fully ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals. Flexible connections shall be permitted in the following locations:

   1. Non-metal flex connections shall be permitted at the duct connection to the Air Handling Unit or Equipment located within the mechanical room.
   2. Non-metal flex connections shall be permitted from an overhead metal duct to a ceiling diffuser within the same room.

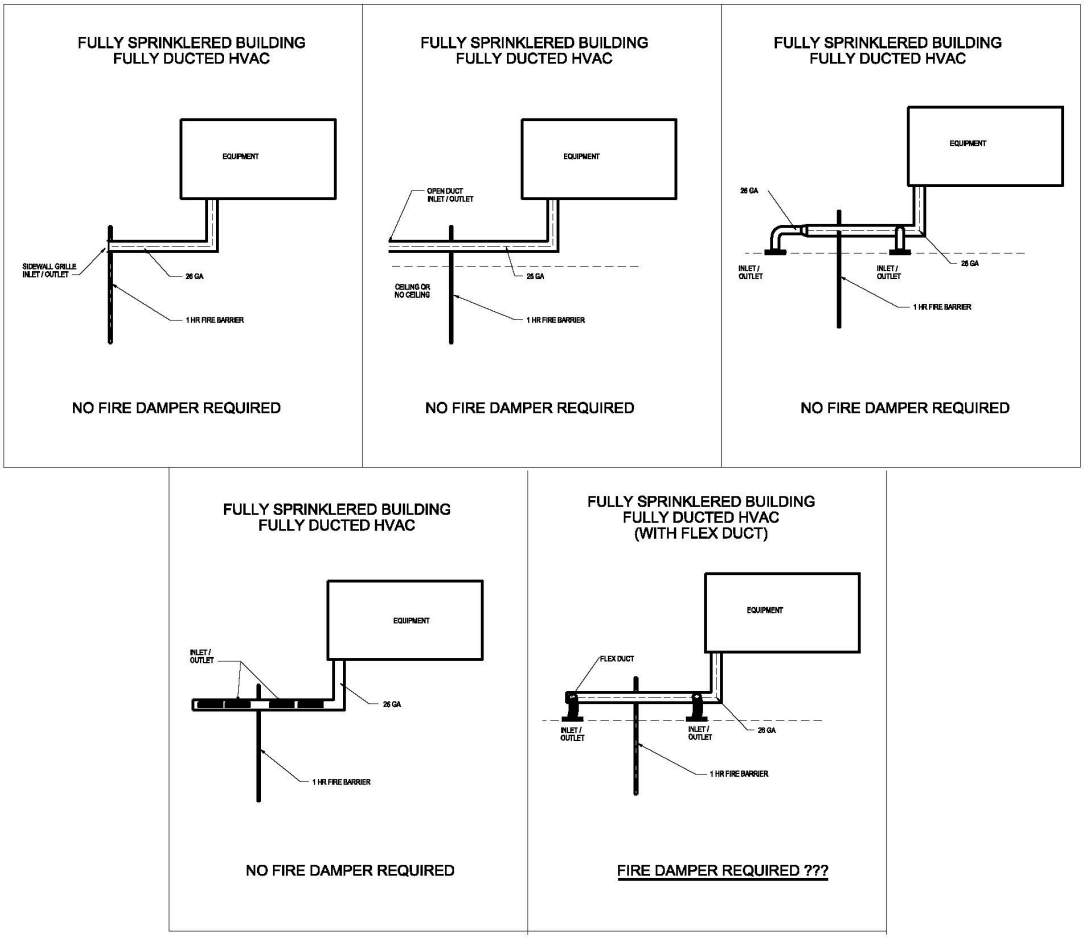
Reason: The code currently implies that any flex duct (or equipment flex connections) negates the use of the exception for fire dampers in 1 hour walls in fully ducted, fully sprinklered buildings.

The code permits the omission of the fire damper for a metal duct system that terminates either at a wall (such as a sidewall grille) or continues on to a duct opening past the fire barrier and has openings in the duct ("continuous from the air-handling appliance or equipment to the air outlet and inlet terminals"). This section

does not even prohibit openings to be on both sides of the duct as long as the openings are in metal duct. However, for some reason, if flex duct is used to connect a metal duct to a ceiling diffuser (standard practice) this triggers the requirement for a fire damper. See attached sketch.
The flex connection within the concealed space does not constitute a greater hazard then other conditions that would permit the omission of the fire dampers.

Likewise, an flex connection at the AHU within the mechanical space does not constitute a hazard that should trigger the fire damper within the system

As noted above, this exception only applies in fully sprinklered buildings.



Cost Impact: Will not increase the cost of construction
The proposed wording will clear up this interpretation and reduce the cost of fire damper installation and maintenance in locations that do not constitute a significant hazard.

FS112-15 : 717.5.2-PETERKIN5245

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following: testing labs are not comfortable with only ASTM E84 testing – perhaps additional listings based on other testing should be required; requirements seem to apply to all occupancies, which is contrary to what the proponent discusses in the reason statement; and the minimum distance from a wall penetration to the flexible connections should be specified and justified.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : John Williams, CBO, representing Adhoc Healthcare Committee (AHC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

717.5.2 Fire barriers. Ducts and air transfer openings of *fire barriers* shall be protected with *approved fire dampers* installed in accordance with their listing. Ducts and air transfer openings shall not penetrate enclosures for *interior exit* stairways and ramps and exit passageways, except as permitted by Sections 1023.5 and 1024.6, respectively.

Exception: *Fire dampers* are not required at penetrations of *fire barriers* where any of the following apply:

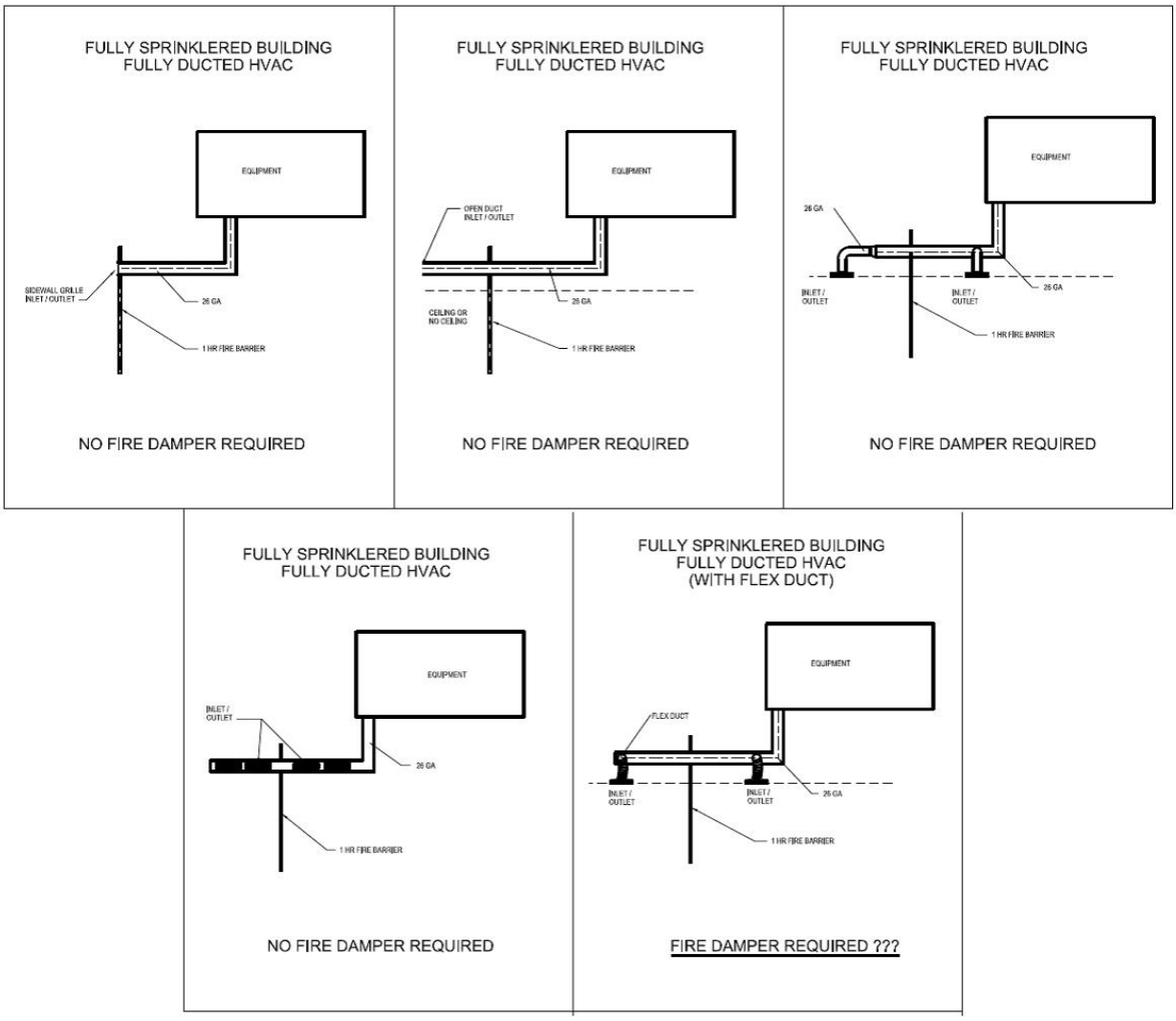
1. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
2. Ducts are used as part of an *approved* smoke control system in accordance with Section 909 and where the use of a *fire damper* would interfere with the operation of a smoke control system.
3. Such walls are penetrated by fully ducted HVAC systems, have a required *fire-resistance rating* of 1 hour or less, are in areas of other than Group H and are in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a fully ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals. Flexible ~~connections shall~~ air connectors shall not be ~~permitted~~ prohibited in fully ducted sheet steel duct systems where the installation meets either of the following ~~locations~~:

   1. ~~Non-metal flex connections shall be permitted at the duct connection~~ Flexible air connectors are installed to ~~the Air Handling Unit or Equipment~~ connect ducts to air handling equipment and such connectors are located entirely within the mechanical room that contains the air handling equipment.
   2. ~~Non-metal flex connections shall be permitted from~~ Flexible air connectors are installed to connect an overhead metal duct to a ceiling diffuser and such connector is located entirely within the same room as the ceiling diffuser. The flexible air connectors shall not pass through any walls, floors or ceilings.

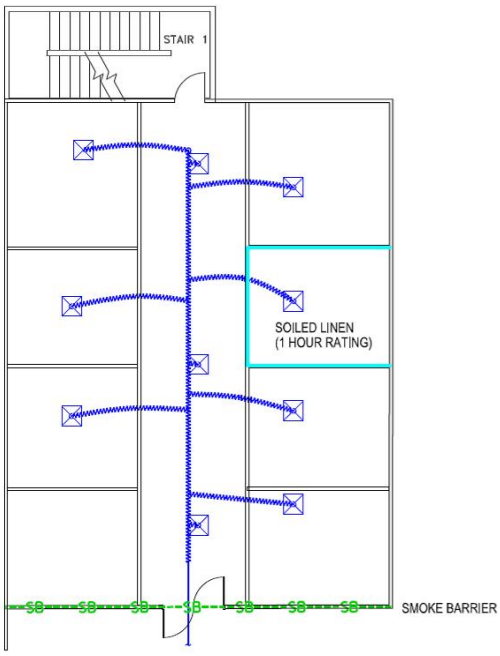
Commenter's Reason: The intention of this code change is to coordinate with the requirements already established in the International Mechanical Code. The intention is to maintain the allowance of flexible connectors at the terminal end of hard ductwork within the room of the air register. This code change also reflects current allowances made in the International Mechanical Code, including Section 603.9 for flexible connectors at air handling equipment, and Section 603.6.2 for flexible air connectors at ceiling diffusers. This public comment maintains the requirements of the IMC, including:

· Limiting the length of the flexible connector to 14 feet actual length.
· Requiring the flexible connector to be tested in accordance with UL 181.
· Requiring use only at the end of hard ductwork.
· Maintains the requirement for hard ductwork to pass through the barrier.

This allows constructability of a fully ducted system, and maintains the integrity of the system throughout the building.

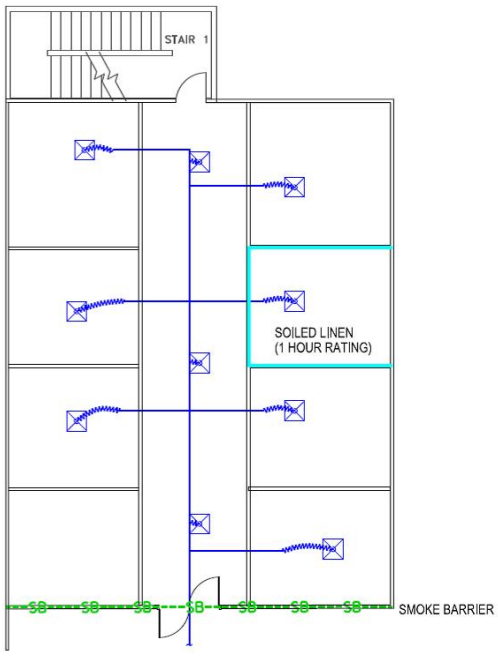


It is not the intention of the code change to allow flexible ducts through any vertical barriers. The flexible ductwork is only to be allowed within a room, and above the ceiling. See the sketch below to better clarify the intention.



ALL FLEX DUCT

NOT ACCEPTABLE



ONLY FLEX AT CONNECTION TO FINAL TERMINALS

ACCEPTABLE

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: Adhoc Healthcare.

FS112-15

FS115-15
717.5.3 (IMC 607.5.5)

Proposed Change as Submitted

Proponent : Raymond Grill, Arup (ray.grill@arup.com)

2015 International Building Code

Revise as follows:

717.5.3 Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with *approved* fire and smoke *dampers* installed in accordance with their listing.

Exceptions:

1. *Firedampers* are not required at penetrations of shafts where any of the following criteria are met:
    - 1.1. Steel exhaust subducts are extended not less than 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside.
    - 1.2. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
    - 1.3. Ducts are used as part of an *approved* smoke control system designed and installed in accordance with Section 909 and where the *firedamper* will interfere with the operation of the smoke control system.
    - 1.4. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
2. ~~In Group B and R occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, *smokedampers*~~Smoke dampers are not required at penetrations of shafts ~~where all of the following criteria~~ in buildings that are ~~met:~~
    - 2.1. ~~Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed~~ equipped throughout with ~~steel exhaust subducts, having a minimum wall thickness of 0.0187-inch (0.4712 mm) (No. 26 gage).~~
    - ~~2.2. The subducts extend not less than 22 inches (559 mm) vertically.~~
    - 2.2. ~~An exhaust fan is installed at the upper terminus of the shaft that is powered continuously~~ an automatic sprinkler system in accordance with ~~the provisions of~~ Section ~~909.11, so as to maintain a continuous upward airflow to the outside~~ 903.3.1.1.
3. *Smoke dampers* are not required at penetration of exhaust or supply shafts in parking garages that are separated from

other building shafts by not less than 2-hour fire-resistance-rated construction.

4. *Smoke dampers* are not required at penetrations of shafts where ducts are used as part of an *approved* mechanical smoke control system designed in accordance with Section 909 and where the *smoke damper* will interfere with the operation of the smoke control system.
5. *Fire dampers* and *combination fire/smokedampers* are not required in kitchen and clothes dryer exhaust systems where installed in accordance with the *International Mechanical Code*.

Reason: The requirement for smoke dampers at penetrations in shafts was first included in the IBC during the comment phase of the development of the first edition of the International Building Code. This requirement did not exist in any of the model building codes (BOCA, UBC & SBC). A requirement for smoke dampers at penetrations of shafts has never been incorporated in the NFPA system of codes. The justification for smoke dampers in the original code change is that smoke can travel through a duct to locations in a building that are remote from the fire. While this statement is correct, smoke travel through ducted ventilation shafts has not been a contributing factor to fire spread or fire deaths in buildings. Smoke detectors at HVAC equipment have been required to accomplish automatic shut off of HVAC equipment to minimize the potential of smoke spread through ventilation ducts. For example, the majority of fire deaths in upper stories of the MGM grand fire of 1980 were due to smoke spread through stair shafts and seismic joints that were not protected. Fancoil units in guestrooms drew air from the corridors which also contributed to fatalities. While the HVAC system was cited as a potential source of smoke spread, smoke detectors were not present to provide automatic shutoff of equipment (NFPA Preliminary Report of the MGM Grand Hotel Fire). The MGM Grand was not sprinkler protected.

There was only one fatality in an upper story of the San Juan DuPont fire in 1986 which was not readily explained. The San Juan Dupont was not sprinker protected. Smoke travel through ventilation shafts was not a contributing factor in the First Interstate fire in Los Angeles or the Meridian fire in Philadelphia. Sprinklers were not active on fire floors in either of those buildings. Even in the World Trade Center bombing of 1993, 6 fatalities were attributed to the explosion, but there were no fatalities due to the effects of smoke (Isner, Michael S. and Klem, Thomas J., "World Trade Center Explosion and Fire," National Fire Protection Association). While these fires were thoroughly investigated, and code changes promulgated to address fire safety issues, smoke dampers in duct penetrations of shafts were never adopted as changes to any of the model codes as a result of these fires.

The original code change in the IBC did not present any technical substantiation for the additional requirement for smoke dampers and there has never been an instance that I am aware of where the provision of smoke dampers in shafts would have made a difference in the fire performance of a fully sprinklered building.

This requirement has been massaged based on negotiation with manufactures and building ownership groups over the past code cycles because it has always been difficult to implement. The requirement for smoke dampers at penetrations of shafts should be removed for fully sprinklered buildings.

There have been jurisdictions and federal agencies that have never adopted the smoke damper requirement for sprinklered buildings. There have not been any incidences reported to show a need for smoke dampers. Agencies include the General Services Administration, Department of Veteran Affairs, and Department of Defense. These agencies own and operate buildings that include all of the occupancy types addressed by the IBC. Smoke dampers are not required in shaft penetrations in their buildings.

Performance of Fully Sprinklered Buildings

It is important to note that the IBC requires sprinkler protection for most buildings of

any significant size or occupant load. Therefore, the performance of sprinklered buildings is relevant. There has never been a multiple life loss fire in a fully sprinklered building of any occupancy type where the occupants have not been intimate with the fire or where an explosive or terrorist event has occurred.

Fire incidents in fully sprinklered buildings have never been identified to demonstrate the need for smoke dampers at shaft penetrations..

Maintaining Operability

Smoke dampers are operated by either a pneumatic actuator or electric motor. Smoke dampers require regular testing and maintenance to keep them operating. Even the most diligent building owners have a difficult time maintaining operability of smoke dampers.

Sustainability

There is a significant amount of resources that go into the implementation of smoke dampers at shaft penetrations. There has not been a demonstrated value to property protection or life safety in fully sprinklered buildings to justify their need.

Cost Impact: Will not increase the cost of construction
This code change will significantly reduce the cost of construction. A rough installed cost estimate for the smoke dampers and associated required equipment can range from $2000-$3000 per damper or even more for large dampers. This does not include the ongoing cost of testing the dampers and detectors that are required to operate the dampers. Regular testing is also required at regular frequencies. Testing costs per damper can vary depending on the number of dampers being tested and the accessibility and complexity of the system.

Analysis: Code change proposals FS 114 and FS 115 propose revisions to Section 717.5.3. The committee needs to make its intent clear with respect to these revisions.

FS115-15 : 717.5.3-GRILL5132

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following: This proposal deletes portions of the text that are currently working well, without justification; the provisions for the continuously running fan at the upper terminus needs to stay as it is very effective; and if substantiation was provided this could be a good change as it would save construction costs.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Raymond Grill, representing SArup - Self (ray.grill@arup.com) requests Approve as Submitted.

Commenter's Reason: The committee's statement that the provisions are working well is erroneous. Smoke dampers were added to the code with no justification. There has not been any issues with fire or smoke spread in shafts of sprinklered

buildings. The cost is extreme. These devices are also difficult to maintain and test.

FS115-15

FS118-15
717.5.5 (IMC 607.5.4)

Proposed Change as Submitted

Proponent : Vickie Lovell, InterCode Incorporated, representing Air Movement Control Association International (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

717.5.5 Smoke barriers. A *listed smoke damper* designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a *smoke barrier*. *Smoke dampers* and *smoke damper* actuation methods shall comply with Section 717.3.3.2.

Exceptions:

1. *Smoke dampers* are not required where the openings in ducts are limited to a single *smoke compartment* and the ducts are constructed of steel.
2. Smoke dampers are not required in smoke barriers required by Section 407.5 for Group I-2, Condition 2—where the HVAC system is fully ducted in accordance with Section 603 of the *International Mechanical Code* and where buildings are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and equipped with quick-response sprinklers in accordance with Section 903.3.2. <u>For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.</u>

Reason: Smoke barrier walls are used to divide areas of a building into separate smoke compartments so that occupants can be evacuated or relocated to adjacent smoke compartments or other areas of the building. They are also used to enclose areas of refuge and or elevator lobbies. Although not required by the IBC, smoke barriers can also be used as part of a smoke control system, accessible means of egress, and compartmentation of underground buildings. IBC Section 709.3 "Fire-resistance rating" states that a 1-hour fire-resistance rating is required for smoke barriers. In addition to a 1 hour fire resistance rating for the smoke barrier, the IBC also requires that all the elements such as doors, penetrations, joints and ducts of a smoke barrier have quantifiable resistance to smoke/air leakage. Smoke barriers are required to be permanently identified and marked with signs or stenciling with wording that requires that openings should be protected after construction and during ongoing maintenance and repairs.
Without any technical justification other than the cost of installation and maintenance of a smoke damper, smoke dampers were removed as duct opening protection in a smoke barrier in fully ducted HVAC systems. No meaningful supporting data was provided to show that eliminating a smoke damper in a smoke barrier duct opening, and replying solely on the sprinkler system and the duct itself is an equivalent alternative to a 1 hour of fire resistance rated assembly, or would satisfy the

requirement to limit the migration of smoke and toxic gases if the duct breaks away from the smoke barrier wall. Therefore this proposed text has been added to better define when the exception for smoke dampers should apply based on the construction of the HVAC system. It has excerpted from the exception permitted in fire partitions (also fire rated for 1 hour) for fire dampers in fully ducted systems in sprinklered buildings as follows:

> 717.5.4 Fire partitions, Exception #4. Such walls are penetrated by ducted HVAC systems, have a required fire-resistance rating of 1 hour or less, and are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction because the code section already requires a fully ducted system in order to eliminate a smoke damper. This proposal brings into this section the description of what a fully ducted system is, which the code already defined in 717.5.4 Fire partitions.

FS118-15 : 717.5.5-LOVELL4473

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following: the provisions would be better placed in definitions of fully ducted system. Proponents should consider combining FS112 and FS118 with revised text and submitting a public comment.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : John Williams, CBO, representing Adhoc Healthcare Committee (AHC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

717.5.5 Smoke barriers. A *listed smoke damper* designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a *smoke barrier*. *Smoke dampers* and *smoke damper* actuation methods shall comply with Section 717.3.3.2.

Exceptions:

1. *Smoke dampers* are not required where the openings in ducts are limited to a single *smoke compartment* and the

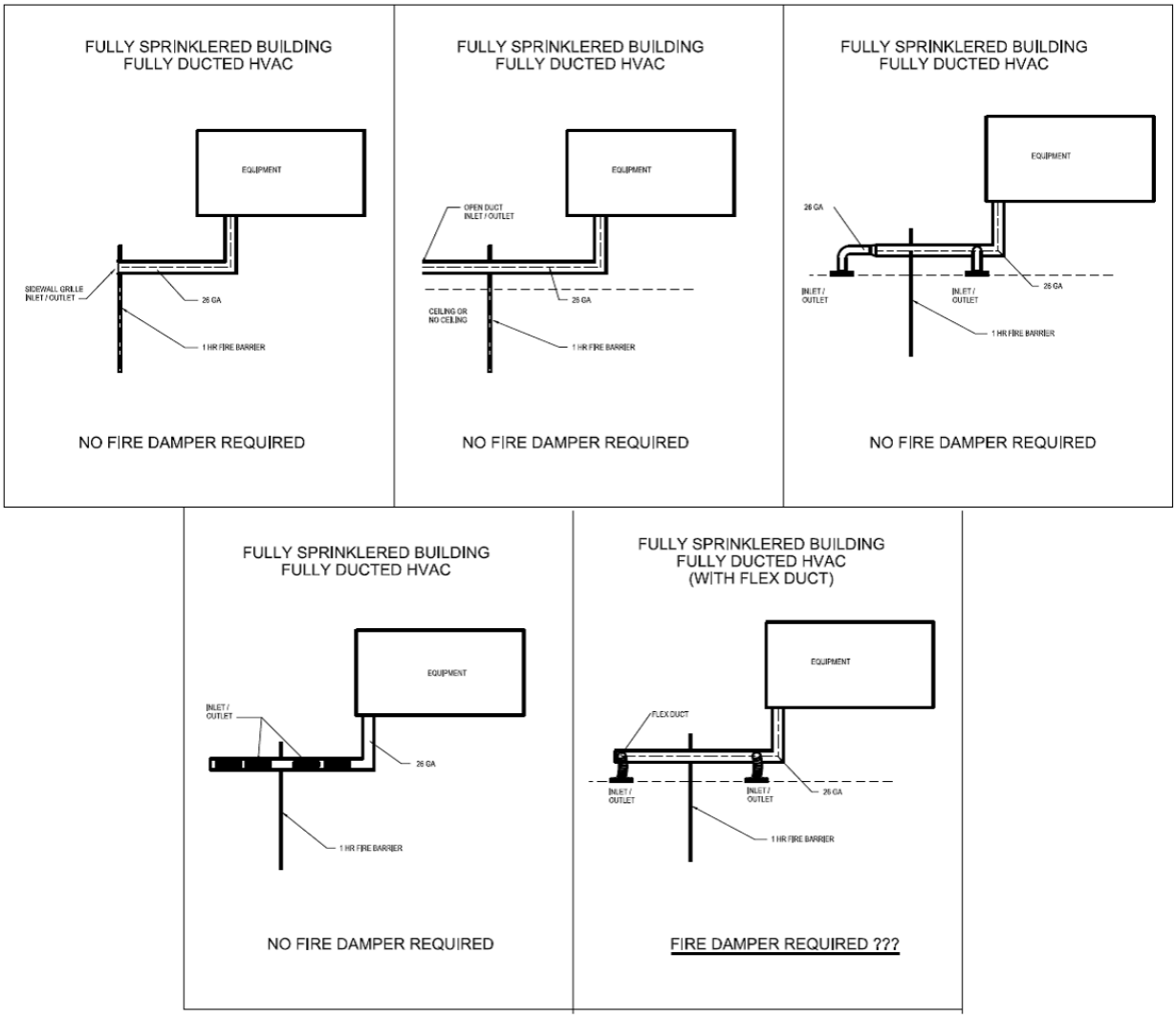
ducts are constructed of steel.

2. Smoke dampers are not required in smoke barriers required by Section 407.5 for Group I-2, Condition 2—where the HVAC system is fully ducted in accordance with Section 603 of the *International Mechanical Code* and where buildings are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and equipped with quick-response sprinklers in accordance with Section 903.3.2. ~~For~~ Flexible air connectors shall not be prohibited in fully ducted sheet steel duct systems where the ~~purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part~~ installation meets either of the ~~structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness~~ following.
    2.1. Flexible air connectors are installed to connect ducts to air handling equipment and ~~shall be continuous from~~ such connectors are located entirely within the ~~air-handling appliance or equipment to~~ mechanical room that contains the air ~~outlet~~ handling equipment.
    2.2. Flexible air connectors are installed to connect an overhead metal duct to a ceiling diffuser and ~~inlet terminals~~ such connector is located entirely within the same room as the ceiling diffuser. The flexible air connectors shall not pass through any walls, floors or ceilings.

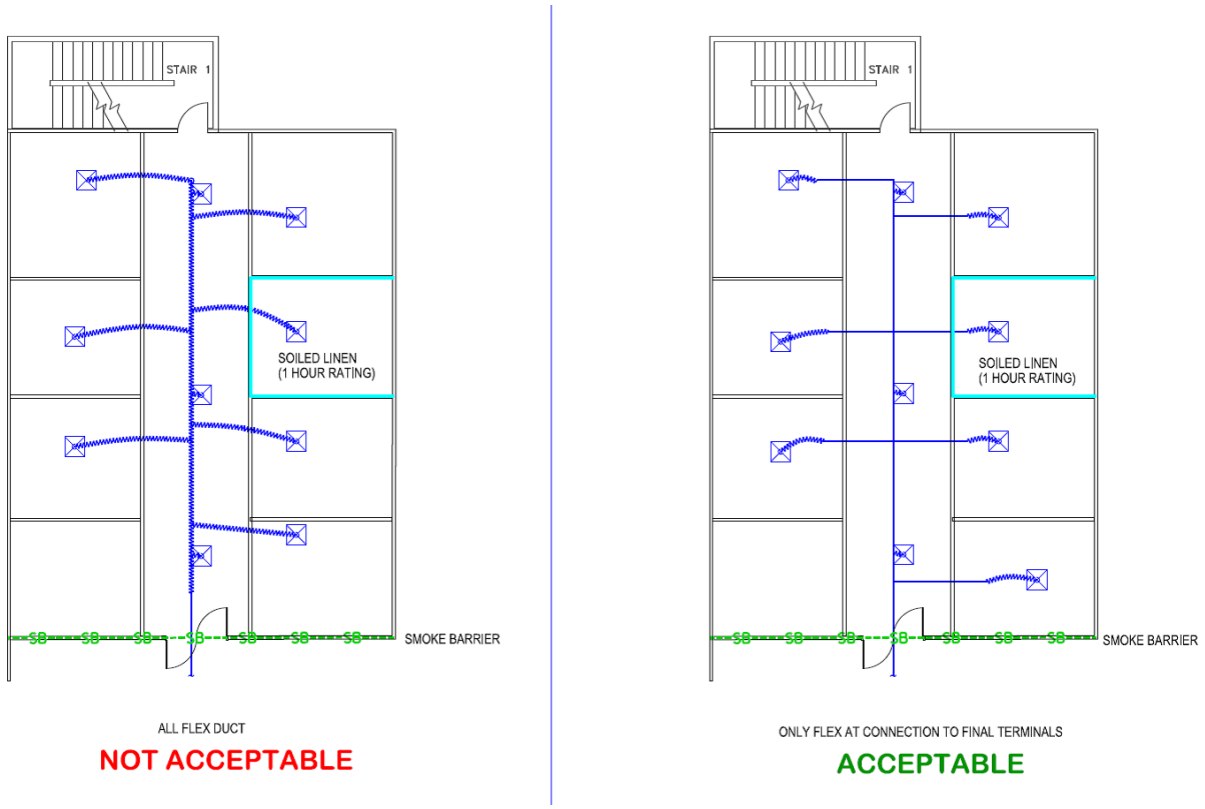
Commenter's Reason: The intention of this code change is to coordinate with the requirements already established in the International Mechanical Code, and better define a fully ducted system better than the originally proposed language. At the recommendation of the Committee, the proposed languages matches with that of FS112-15. The intention is to maintain the allowance of flexible connectors at the terminal end of hard ductwork within the room of the air register. This code change also reflects current allowances made in the International Mechanical Code, including Section 603.9 for flexible connectors at air handling equipment, and Section 603.6.2 for flexible air connectors at ceiling diffusers. This public comment maintains the requirements of the IMC, including:

• Limiting the length of the flexible connector to 14 feet actual length.
• Requiring the flexible connector to be tested in accordance with UL 181.
• Requiring use only at the end of hard ductwork.
• Maintains the requirement for hard ductwork to pass through the barrier.

This allows constructability of a fully ducted system, and maintains the integrity of the system throughout the building.



It is not the intention of the code change to allow flexible ducts through any vertical barriers. The flexible ductwork is only to be allowed within a room, and above the ceiling. See the sketch below to better clarify the intention.



The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The

AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: Adhoc Healthcare.

FS118-15

FS121-15 Part I

718.3.2

Proposed Change as Submitted

Proponent : Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

718.3.2 Groups R-1, R-2, R-3 and R-4. Draftstopping shall be provided in floor/ceiling spaces in Group R-1 buildings, in Group R-2 buildings with three or more *dwellingunits*, in Group R-3 buildings with two *dwellingunits* and in Group R-4 buildings. Draftstopping shall be located above and in line with the *dwellingunit* and *sleeping unit* separations.

Exceptions:

1. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
2. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers in accordance with Section 903.3.1.1 are installed in the combustible concealed spaces where the draftstopping is being omitted.

Reason: The requirement to have an NFPA 13R sprinkler system protect combustible concealed spaces contradicts the intent of a 13R system. The NFPA 13R code specifically excludes the installation of sprinklers in combustible concealed spaces. Section 6.6.6 of NFPA 13R, 2010 edition (the edition referenced by the 2012 IBC), reads as follows:

"**6.6.6** Sprinklers shall not be required in attics, penthouse equipment rooms, elevator machine rooms, concealed spaces dedicated exclusively to and containing only dwelling unit ventilation equipment, crawl spaces, floor/ceiling spaces, noncombustible elevator shafts where the elevator cars comply with ANSI A17.1, *Safety Code for Elevators and Escalators*, and other concealed spaces that are not used or intended for living purposes or storage and do not contain fuel-fired equipment."

Because NFPA 13R specifically does not include within its scope the installation of sprinklers in concealed spaces, there are no criteria within NFPA 13R that are suitable for the protection of concealed spaces. NFPA 13, on the other hand, sets forth requirements for protecting concealed combustible spaces. As such, NFPA 13 has suitable design criteria for protection of concealed combustible spaces. Specifically, NFPA 13 provides "Section 8.16.1 Concealed Spaces" (too lengthy to retype). This section sets forth the concealed spaces where sprinklers are required, methods to mitigate sprinklers in concealed spaces, the density criteria for the sprinklers, provisions for localized protection of combustibles, and sprinkler head listing requirements for protection of spaces that of shallower heights.

Because NFPA 13R does not have design criteria for the protection of combustible concealed spaces, it is not appropriate to refer to that standard for protection of concealed combustible spaces. This amendment seeks to require that protection of concealed combustible spaces be provided in an appropriate manner, using the only recognized reference sprinkler code that provides criteria for protection of concealed combustible spaces.

Cost Impact: Will not increase the cost of construction
This proposal does not increase the cost of construction, as the requirements for sprinklers currently exist, and are being clarified only.

FS121-15 Part I :
718.3.2-DIGIOVANNI3829

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: The committee preferred their action on FS42 and that these revisions were unnecessary.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Stephen DiGiovanni, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

718.3.2 Groups R-1, R-2, R-3 and R-4. Draftstopping shall be provided in floor/ceiling spaces in Group R-1 buildings, in Group R-2 buildings with three or more *dwellingunits*, in Group R-3 buildings with two *dwellingunits* and in Group R-4 buildings. Draftstopping shall be located above and in line with the *dwellingunit* and *sleeping unit* separations.

~~Exceptions~~ Exception:

1. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
2. ~~Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers in accordance with Section 903.3.1.1 are installed in the combustible concealed spaces where the draftstopping is being omitted.~~

Commenter's Reason: This proposal was rejected at the request of the submitter, in order to favor FS-42. Should FS-42 survive the Final Hearings, this public comment will be withdrawn.

This public comment moves to entirely remove the exception (rather than modify the exception) to no longer allow draft curtains to be exempted due to the installation of NFPA 13R systems.

The requirement to have an NFPA 13R sprinkler system protect combustible concealed spaces contradicts the intent of a 13R system. The NFPA 13R code specifically excludes the installation of sprinklers in combustible concealed spaces. Section 6.6.6 of NFPA 13R, 2010 edition (the edition referenced by the 2012 IBC), reads as follows:

"**6.6.6** Sprinklers shall not be required in attics, penthouse equipment rooms, elevator machine rooms, concealed spaces dedicated exclusively to and containing only dwelling unit ventilation equipment, crawl spaces, floor/ceiling spaces, noncombustible elevator shafts where the elevator cars comply with ANSI A17.1, *Safety Code for Elevators and Escalators*, and other concealed spaces that are not used or intended for living purposes or storage and do not contain fuel-fired equipment."

Because NFPA 13R specifically does not include within its scope the installation of sprinklers in concealed spaces, there are no criteria within NFPA 13R that are suitable for the protection of concealed spaces. NFPA 13, on the other hand, sets forth requirements for protecting concealed combustible spaces. As such, NFPA 13 has suitable design criteria for protection of concealed combustible spaces. Specifically, NFPA 13 provides "Section 8.16.1 Concealed Spaces" (too lengthy to retype). This section sets forth the concealed spaces where sprinklers are required, methods to mitigate sprinklers in concealed spaces, the density criteria for the sprinklers, provisions for localized protection of combustibles, and sprinkler head listing requirements for protection of spaces that of shallower heights.

Because NFPA 13R does not have design criteria for the protection of combustible concealed spaces, it is not appropriate to refer to that standard for protection of concealed combustible spaces. This amendment seeks to require that protection of concealed combustible spaces be provided in an appropriate manner, using the only recognized reference sprinkler code that provides criteria for protection of concealed combustible spaces.

FS121-15 Part I

FS121-15 Part II

718.4.2

Proposed Change as Submitted

Proponent : Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

718.4.2 Groups R-1 and R-2. Draftstopping shall be provided in *attics*, mansards, overhangs or other concealed roof spaces of Group R-2 buildings with three or more *dwellingunits* and in all Group R-1 buildings. Draftstopping shall be installed above, and in line with, *sleeping unit* and *dwellingunit* separation walls that do not extend to the underside of the roof sheathing above.

Exceptions:

1. Where *corridor* walls provide a *sleeping unit* or *dwellingunit* separation, draftstopping shall only be required above one of the *corridor* walls.
2. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. In occupancies in Group R-2 that do not exceed four *storiesabovegrade plane*, the *attic* space shall be subdivided by *draftstops* into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.
4. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers <u>in accordance with Section 903.3.1.1</u> are installed in the combustible concealed space where the draftstopping is being omitted.

Reason: The requirement to have an NFPA 13R sprinkler system protect combustible concealed spaces contradicts the intent of a 13R system. The NFPA 13R code specifically excludes the installation of sprinklers in combustible concealed spaces. Section 6.6.6 of NFPA 13R, 2010 edition (the edition referenced by the 2012 IBC), reads as follows:

"**6.6.6** Sprinklers shall not be required in attics, penthouse equipment rooms, elevator machine rooms, concealed spaces dedicated exclusively to and containing only dwelling unit ventilation equipment, crawl spaces, floor/ceiling spaces, noncombustible elevator shafts where the elevator cars comply with ANSI A17.1, *Safety Code for Elevators and Escalators*, and other concealed spaces that are not used or intended for living purposes or storage and do not contain fuel-fired equipment."

Because NFPA 13R specifically does not include within its scope the installation of sprinklers in concealed spaces, there are no criteria within NFPA 13R that are

suitable for the protection of concealed spaces. NFPA 13, on the other hand, sets forth requirements for protecting concealed combustible spaces. As such, NFPA 13 has suitable design criteria for protection of concealed combustible spaces. Specifically, NFPA 13 provides "Section 8.16.1 Concealed Spaces" (too lengthy to retype). This section sets forth the concealed spaces where sprinklers are required, methods to mitigate sprinklers in concealed spaces, the density criteria for the sprinklers, provisions for localized protection of combustibles, and sprinkler head listing requirements for protection of spaces that of shallower heights.

Because NFPA 13R does not have design criteria for the protection of combustible concealed spaces, it is not appropriate to refer to that standard for protection of concealed combustible spaces. This amendment seeks to require that protection of concealed combustible spaces be provided in an appropriate manner, using the only recognized reference sprinkler code that provides criteria for protection of concealed combustible spaces.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as the requirements currently exist, and are just being clarified by this proposal.

FS121-15 Part II :
718.4.2-DIGIOVANNI3830

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: The committee preferred their action on FS42 and that these revisions were unnecessary.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Stephen DiGiovanni, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

718.4.2 Groups R-1 and R-2. Draftstopping shall be provided in *attics*, mansards, overhangs or other concealed roof spaces of Group R-2 buildings with three or more *dwellingunits* and in all Group R-1 buildings. Draftstopping shall be installed above, and in line with, *sleeping unit* and *dwellingunit* separation walls that do not extend to the underside of the roof sheathing above.

Exceptions:

1. Where *corridor* walls provide a *sleeping unit* or *dwellingunit*

separation, draftstopping shall only be required above one of the *corridor* walls.

2. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. In occupancies in Group R-2 that do not exceed four *storiesabovegrade plane*, the *attic* space shall be subdivided by *draftstops* into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.
4. ~~Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers in accordance with Section 903.3.1.1 are installed in the combustible concealed space where the draftstopping is being omitted.~~

Commenter's Reason: This proposal was rejected at the request of the submitter, in order to favor FS-42. Should FS-42 survive the Final Hearings, this public comment will be withdrawn.

This public comment moves to entirely remove the exception (rather than modify the exception) to no longer allow draft curtains to be exempted due to the installation of NFPA 13R systems.

The requirement to have an NFPA 13R sprinkler system protect combustible concealed spaces contradicts the intent of a 13R system. The NFPA 13R code specifically excludes the installation of sprinklers in combustible concealed spaces. Section 6.6.6 of NFPA 13R, 2010 edition (the edition referenced by the 2012 IBC), reads as follows:

"**6.6.6** Sprinklers shall not be required in attics, penthouse equipment rooms, elevator machine rooms, concealed spaces dedicated exclusively to and containing only dwelling unit ventilation equipment, crawl spaces, floor/ceiling spaces, noncombustible elevator shafts where the elevator cars comply with ANSI A17.1, *Safety Code for Elevators and Escalators*, and other concealed spaces that are not used or intended for living purposes or storage and do not contain fuel-fired equipment."

Because NFPA 13R specifically does not include within its scope the installation of sprinklers in concealed spaces, there are no criteria within NFPA 13R that are suitable for the protection of concealed spaces. NFPA 13, on the other hand, sets forth requirements for protecting concealed combustible spaces. As such, NFPA 13 has suitable design criteria for protection of concealed combustible spaces. Specifically, NFPA 13 provides "Section 8.16.1 Concealed Spaces" (too lengthy to retype). This section sets forth the concealed spaces where sprinklers are required, methods to mitigate sprinklers in concealed spaces, the density criteria for the sprinklers, provisions for localized protection of combustibles, and sprinkler head listing requirements for protection of spaces that of shallower heights.

Because NFPA 13R does not have design criteria for the protection of combustible concealed spaces, it is not appropriate to refer to that standard for protection of concealed combustible spaces. This amendment seeks to require that protection of concealed combustible spaces be provided in an appropriate manner, using the only recognized reference sprinkler code that provides criteria for protection of concealed combustible spaces.

FS124-15
720.1, 720.2.1

Proposed Change as Submitted

Proponent : Lamont Millspaugh, Reflectix, Inc., representing Reflective Insulation Manufacturers Association International (monty.millspaugh@reflectixinc.com)

2015 International Building Code

Revise as follows:

720.1 General. Insulating materials, including facings such as vapor retarders and *vapor-permeable membranes*, similar coverings and ~~all layers of~~ single and multilayer reflective ~~foil~~ insulations, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.

Exceptions:

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the *International Mechanical Code*.
4. All layers of single and multilayer reflective plastic core insulation shall comply with Section 2613.

720.2.1 Facings. Where such materials are installed in concealed spaces in buildings of Type III, IV or V construction, the flame spread and smoke-developed limitations do not apply to facings, coverings, and layers of reflective ~~foil~~ insulation that are installed behind and in substantial contact with the unexposed surface of the ceiling, wall or floor finish.

Exception: All layers of single and multilayer reflective plastic core insulation shall comply with Section 2613.

Reason: The stricken language "all layers" is redundant and could cause confusion. Furthermore, this is not the correct method for testing these types of products. ASTM E 84 procedures call for the entire product to be tested, not each component of the product.
The word "foil" is an outdated describer of reflective insulation products. Some do contain foil, but a majority of the industry has moved to metalized films. All reflective insulations require the same testing regiment independent of composition.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction. The proposal updates the material reference language within the code, in order to be current with standard industry practice.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that removing "all layers" as it relates to single and multilayer reflective insulations was not appropriate as this is the general section, which is talking about all types of insulation.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Amanda Hickman, InterCode Incorporated, representing Reflective Insulation Manufacturers Association International (amanda@intercodeinc.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

720.1 General. Insulating materials, including facings such as vapor retarders and *vapor-permeable membranes*, similar coverings and all layers of single and multilayer reflective insulations, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.

Exceptions:

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the *International Mechanical Code*.
4. All layers of single and multilayer *reflective plastic core insulation* shall comply with Section ~~2613~~ 2614.

720.2.1 Facings. Where such materials are installed in concealed spaces in buildings of Type III, IV or V construction, the flame spread and smoke-developed limitations do not apply to facings, coverings, and ~~layers of~~ reflective insulation that are installed behind and in substantial contact with the unexposed surface of the ceiling, wall or floor finish.

Exception: All layers of single and multilayer *reflective plastic core insulation* shall comply with Section ~~2613~~ 2614.

Commenter's Reason: While FS123 provides some of the necessary fixes to this

section, there are still inaccuracies within the section. The word "foil" is an outdated describer of reflective insulation products. Some do contain foil, but a majority of the industry has moved to metalized films. Also, this public comment corrects the section number to the correct section for these products.

FS124-15

FS125-15

720.1, 720.5.1 (New)

Proposed Change as Submitted

Proponent : Wesley Hall, Reflectix, Inc., representing Reflective Insulation Manufacturers Association International (wes.hall@reflectixinc.com)

2015 International Building Code

Revise as follows:

720.1 General. Insulating materials, including facings such as vapor retarders and *vapor-permeable membranes*, similar coverings and all layers of single and multilayer reflective foil insulations and radiant barriers fully laminated to the underside of a wood roof deck, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.

Exceptions:

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the *International Mechanical Code*.
4. All layers of single and multilayer reflective plastic core insulation shall comply with Section 2613.

Add new text as follows:

720.5.1 Radiant barrier fully laminated to the underside of a wood roof deck The use of radiant barrier fully laminated to the underside of a wood roof deck shall be permitted in any type of construction provided the low emittance side of the product is facing an air space below the roof deck with an *approved* roof covering. The fire classification of the wood roof deck including the radiant barrier shall not be lower than that of the wood roof deck in the absence of the radiant barrier.

Reason: The proposal adds necessary language to ensure that radiant barriers attached to wood roof decks are properly installed below an *approved* roof covering. The current language in the code does not include any reference to a very predominant product type in the market place for **almost 30 years**. This proposed language addresses this need.

- Product History Acceptance and Distribution
  - Of the top 100 U.S. builders, 87 utilize this product type
  - 650,000,000+ sq. ft. of this product is installed annually
- Current ASTM Standards include C 1313 and C 1744
- Codes that include Radiant Barrier:
  - HI-Chapter 181 of Title 3, Table 402.1.1.1, Section 402.1.1.6 and Section 402.1.1.8.1

    - TX-Austin, Chapter 25-12, Article 12. Energy Code, Section 402.6
    - FL-2010 Florida Building Code, Section 405.6.1, Figure 405.6.1 and Table 303.2 (ASTM Standards)
    - CA-Title 24, Part 6, Subsection 8, Section (f), Subsection 2, Table 151-B, Table 151-C, Table 151-D
- Additional supporting references:
    - ICC ES - AC220

Proper installation of radiant barrier systems are covered in "Radiant Barriers: A Question and Answer Primer", available from the Florida Solar Energy Center (http://www.fsec.ucf.edu/en/publications/html/fsec-en-15/), and the ORNL website offers a "Radiant Barrier Fact Sheet" (http://web.ornl.gov/sci/ees/etsd/btric/RadiantBarrier/RBFactSheet2010.pdf) and included in ASTM C 1744.

REFERENCES:

ASTM C 1313/C 1313M Standard Specification for Sheet Radiant Barriers for Building Construction Applications

ASTM C 1744 Practice for Installation and Use of Radiant Barrier Systems (RBS) in Commercial/Industrial Building Construction.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction. The proposal does not change requirements for existing materials but offers an additional option of alternate materials into the code.

FS125-15 : 720.1-HALL4563

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following: The term fully laminated should be clarified with a definition; and testing needs to be provided to show how this might affect the fire-resistance-rating of a roof assembly.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Amanda Hickman, InterCode Incorporated, representing Reflective Insulation Manufacturers Association International (amanda@intercodeinc.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

720.1 General. Insulating materials, including facings such as vapor

retarders and *vapor-permeable membranes*, similar coverings and all layers of single and multilayer reflective foil insulations and *radiant barriers* fully laminated to the underside of a ~~wood roof~~ combustible deck, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.

Exceptions:

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the *International Mechanical Code*.
4. All layers of single and multilayer *reflective plastic core insulation* shall comply with Section ~~2613~~ 2614.

720.5.1 Radiant barrier fully laminated to the underside of a ~~wood roof~~ combustible deck The use of *radiant barrier* fully laminated to the underside of a ~~wood roof~~ combustible deck shall be permitted in any type of construction provided the low emittance side of the product is facing an air space below the roof deck ~~with an *approved* roof covering. The fire classification of the wood roof deck including the radiant barrier shall not be lower than that of the wood roof deck in the absence of the radiant barrier~~.

Commenter's Reason: The proposal adds necessary language to ensure that when radiant barriers are attached to combustible decks they are properly installed. The current language in the code does not include any reference to a very predominant product type in the market place for almost 30 years.

FS125-15

FS126-15

720.1, 720.1.1 (New), 2615 (New), 2615.1 (New), 2615.2 (New), 2615.3 (New), 2615.3.1 (New), 2615.3.2 (New)

Proposed Change as Submitted

Proponent : Amanda Hickman, InterCode Incorporated, representing Reflective Insulation Manufacturers Association International (amanda@intercodeinc.com)

2015 International Building Code

Delete and substitute as follows:

720.1 General. ~~Insulating materials, including facings such as vapor retarders and *vapor-permeable membranes*, similar coverings and all layers of single and multilayer reflective foil insulations, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.~~

~~**Exceptions:**~~

1. ~~Fiberboard insulation shall comply with Chapter 23.~~
2. ~~Foam plastic insulation shall comply with Chapter 26.~~
3. ~~Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the *International Mechanical Code*.~~
4. ~~All layers of single and multilayer reflective plastic core insulation shall comply with Section 2613.~~

Insulating materials, including the following, shall comply with the requirments of this section.

1. Facings such as vapor retarders and vapor-permeable membranes and similar coverings.
2. All layers of single and multilayer reflective foil insulations, including reflective plastic core insulation, complying with Section 2614.
3. Radiant barriers with plastic core, complying with Section 2615, when installed below the roof deck with an air space between the roof deck and the radiant barrier.

Exceptions

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the International Mechanical Code.

Add new text as follows:

720.1.1 Flame Spread and Smoke Indexes Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.

SECTION 2615 RADIANT BARRIER WITH PLASTIC CORE

2615.1 General The provisions of this section shall govern the requirements for radiant barrier with plastic core installed below the roof deck with an air space between the roof deck and the radiant barrier.

2615.2 Identification. Packages and containers of radiant barriers with plastic core delivered to the job site shall show the manufacturer's or supplier's name, product identification and manufacturer's installation instructions and information sufficient to determine that the end use will comply with the code requirements.

2615.3 Fire Testing These materials shall comply with either 2615.3.1 or 2615.3.2:

2615.3.1 Surface-burning characteristics Radiant barrier with plastic core installed below the roof deck with an air space between the roof deck and the radiant barrier shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450 when tested in accordance with ASTM E 84 or UL 723. The test specimen preparation and mounting requirements shall be in accordance with ASTM E 2599.

2615.3.2 Room corner test heat release Radiant barriers with plastic core installed below the roof deck with an air space between the roof deck and the radiant barrier shall comply with the acceptance criteria of Section 803.1.2.1 when tested in accordance with NFPA 286 in the configuration of final installation.

Reason: This proposal addresses three issues that currently exist in this code section.

1. It corrects an editorial mistake in section 720.1 exception 4. The exception should reference 2614 instead of 2613. This exception is being rewritten in affirmative language rather than as an exception. The change recognizes that the reflective insulations explicitly covered by the code (in section 2614) are reflective plastic core insulations.
2. NO technical changes have been made to this section, except for adding radiant barriers to the materials listed.
3. This proposal establishes a new section on radiant barriers with plastic core that are installed with an air space between the radiant barrier and the roof deck. A new section 2615 is proposed for these insulation materials. This is a different and distinct product category separate from the existing section 2614 Reflective Plastic Core Insulation. Radiant barriers with plastic core provide different types of performances, are installed in different locations and are labeled differently than reflective plastic core insulation.

This new language is needed in order to ensure that these radiant barrier materials

comply with the appropriate fire tests and are properly marked or labeled and installed correctly. The sections in Chapter 26 address different types of plastic which is why this technology has been included in this section. These product types are a long-standing, energy-saving technology having first been evaluated in the late 1950s (Joy, 1958). As far back as the 1970s, sheets of highly reflective surfaces called Radiant Barrier Systems (RBS) have been installed.

Product design innovations have resulted in a radiant barrier product configuration that requires the same treatment as *reflective plastic core insulation* as it pertains to flame/smoke safety. This proposal will require the same flame/smoke requirements for radiant barriers as those determined by UL 723 or ASTM E 84 or NFPA 286.

Proper installation of radiant barrier systems are covered in "Radiant Barriers: A Question and Answer Primer", available from the Florida Solar Energy Center (http://www.fsec.ucf.edu/en/publications/html/fsec-en-15/), and the ORNL website offers a "Radiant Barrier Fact Sheet" (http://web.ornl.gov/sci/ees/etsd/btric/RadiantBarrier/RBFactSheet2010.pdf) and the products are specified in ASTM C 1744.

REFERENCES:

ASTM C 1313/C 1313M Standard Specification for Sheet Radiant Barriers for Building Construction Applications
ASTM C 1744 Practice for Installation and Use of Radiant Barrier Systems (RBS) in Commercial/Industrial Building Construction
Joy, F.S. (1958). Improving Attic Space Insulating Values. ASHRAE Transaction, 64 251-266

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction. The proposal does not change the requirements for existing materials but offers an additional option of alternative materials to the code.

FS126-15 : 720.1-HICKMAN4420

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Testing needs to be provided to show how radiant barriers might affect the fire-resistance-rating of a roof assembly.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Amanda Hickman, InterCode Incorporated, representing Reflective Insulation Manufacturers Association International (amanda@intercodeinc.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

RADIANT BARRIER WITH PLASTIC CORE. A flexible *radiant barrier* that has a thermoplastic or thermosetting polymer interlayer that is packaged in rolls.

720.1 General. Insulating materials, including facings such as vapor retarders and *vapor-permeable membranes*, similar coverings and all layers of single and multilayer reflective foil insulations and *radiant barriers with plastic core*, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.

Exceptions:

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the *International Mechanical Code*.
4. All layers of single and multilayer *reflective plastic core insulation* shall comply with Section ~~2613~~ 2614.
5. *Radiant barriers with plastic core*, when installed below the roof deck with an air space between the roof deck and the *radiant barrier* shall comply with Section 2615.

SECTION 2615 RADIANT BARRIER WITH PLASTIC CORE

2615.1 General. The provisions of this section shall govern the requirements for *radiant barriers with plastic core* installed below the roof deck with an air space between the roof deck and the *radiant barrier*.

2615.2 Identification Packages and containers of *radiant barriers with plastic core* delivered to the job site shall show the manufacturer's or supplier's name, product identification and manufacturer's installation instructions and information sufficient to determine that the end use will comply with the code requirements.

2615.3 Fire Testing These materials shall comply with either 2615.3.1 or 2615.3.2.

2615.3.1 Surface-burning characteristics *Radiant barriers with plastic core* installed below the roof deck with an air space between the roof deck and the *radiant barrier* shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450 when tested in accordance with ASTM E 84 or UL 723. The test specimen preparation and mounting requirements shall be in accordance with ASTM E 2599.

2615.3.2 Room corner test heat release *Radiant barriers with plastic core* installed below the roof deck with an air space between the roof deck and the *radiant barrier* shall comply with the acceptance criteria of Section 803.1.2.1 when tested in accordance with NFPA 286 in the configuration of final installation.

Commenter's Reason: There is nothing in the code that disallows these products. And, in fact, radiant barriers with plastic core are widely used throughout the

country, and, therefore, code language is needed to ensure that radiant barrier materials comply with the appropriate fire tests and are properly marked or labeled, and installed correctly. A new section (2615) has been proposed to address these needs. Secondly, this proposal corrects an editorial mistake in Section 720.1 Exception 4. The exception should reference Section 2614 which is the correct section, instead of 2613.

FS126-15

FS127-15

720.1, 720.5.1 (New), 720.5.2 (New), 202 (New)

Proposed Change as Submitted

Proponent : Vickie Lovell, InterCode Incorporated, representing Reflective Insulation Manufacturers Association International (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

720.1 General. Insulating materials, including facings such as vapor retarders and *vapor-permeable membranes*, similar coverings and all layers of single and multilayer reflective foil insulations and interior radiation control coatings, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.

Exceptions:

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the *International Mechanical Code*.
4. All layers of single and multilayer reflective plastic core insulation shall comply with Section 2613.

Add new text as follows:

720.5.1 Interior radiation control coatings (IRCC) applied to the underside of a non-combustible roof deck. Interior radiation control coatings applied to the underside of a non-combustible roof deck shall face an interior air space and have an *approved* roof covering. The IRCC shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450.

720.5.2 Interior radiation control coatings (IRCC) applied to the underside of a wood roof deck Interior radiation control coatings applied to the underside of a wood roof deck shall face an interior air space and have an *approved* roof covering. The Fire Classification of the wood roof deck including the IRCC shall not be lower than that of the wood roof deck in the absence of the IRCC.

Add new definition as follows:

SECTION 202 DEFINITIONS

INTERIOR RADIATION CONTROL COATING (IRRC). A coating, having an emittance of 0.25 or less, applied as a liquid to building assemblies by roller or spray.

Reason: This proposal addresses the following issues that currently exist in this code section.

1. The proposal adds necessary language to ensure that interior radiation control coatings in roof systems are properly installed below an approved roof covering. The current language in the code does not include any reference to a very predominant product type in the market place. This proposed language addresses this need.
2. This proposal adds a new definition and section for Interior Radiation Control Coatings (IRCC). It also adds the term to the changing language of this section to ensure that the IRCC **WHEN** installed complies with the fire safety requirements in this section.

As characterized by ASTM, an Interior Radiation Control Coating (IRCC) is a non-thickness dependent, low emittance coating. When applied to building materials such as plywood, OSB or metal roofing, according to the manufacturer's installation instruction, it lowers the normal surface emittance of these materials to 0.25 or lower.

An IRCC works by changing the emittance of the surface where it is applied. Building products, such as wood, brick, painted surfaces and plasterboard exhibit high emissivities (0.7 - 0.95). When heated above the temperature of adjacent surfaces, they radiate most of their heat energy to cooler surfaces. An IRCC works by lowering their surface emittance to 0.25 or lower, lessening their ability to radiate heat.

An IRCC is normally applied using airless spray equipment, resulting in very low labor costs and greatly reduced installation times. Also, a water based IRCC can be safely installed in existing structures where the costs of installing foil or film products may be prohibitive or impractical.

REFERENCED STANDARD:

ASTM C 1321 Standard Practice for Installation and Use of Interior Radiation Control Coating Systems (IRCCs) in Building Construction.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction. The proposal does not change requirements for existing materials, but offers an additional option of alternative materials into the code.

FS127-15 : 720.1-LOVELL4431

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Testing needs to be provided to show how interior radiation control coatings might affect the fire-resistance-rating of a roof assembly. Also, testing needs to be provided to substantiate that this material will have no effect on the roof classification. Lastly, installation requirements should not be part of the definition.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Amanda Hickman, InterCode Incorporated, representing Reflective Insulation Manufacturers Association International (amanda@intercodeinc.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

INTERIOR RADIATION CONTROL COATING (IRRC). A coating, having an emittance of 0.25 or less, applied as a liquid to building assemblies.

720.1 General. Insulating materials, including facings such as vapor retarders and *vapor-permeable membranes*, similar coverings and all layers of single and multilayer reflective foil insulations and *interior radiation control coatings*, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.

Exceptions:

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the *International Mechanical Code*.
4. All layers of single and multilayer reflective plastic core insulation shall comply with Section ~~2613~~ 2614.

720.5.1 Interior radiation control coatings (IRCC) applied to the underside of a non-combustible deck. When installed, *interior radiation control coatings* applied to the underside of a non-combustible deck shall face an interior air space and have an *approved* roof covering. The *IRCC* shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450.

720.5.2 Interior radiation control coatings (IRCC) applied to the underside of a combustible deck.
When installed, interior radiation control coatings applied to the underside of a combustible deck shall face an interior air space.

Commenter's Reason: There is nothing in the code that prohibits the use of this product. And, in fact, interior radiation control coatings are currently being installed throughout the country. Therefore, it is critical that language is added to the code to ensure that WHEN interior radiation control coatings in roof systems are installed, they are done so properly below an approved roof covering and that the IRCC complies with the fire safety requirements in the proposed section.

FS127-15

FS128-15
Table 721.1(2)

Proposed Change as Submitted

Proponent : Mike Fischer, Kellen Company, representing The Gypsum Association (mfischer@kellencompany.com)

2015 International Building Code

Revise as follows:

TABLE 721.1(2)
RATED FIRE-RESISTANCE PERIODS FOR VARIOUS WALLS AND PARTITIONS [a, o, p]

MATERIAL	ITEM NUMBER	CONSTRUCTION	MINIMUM FINISHED THICKNESS FACE-TO-FACE[b] (inches)			
			4 hours	3 hours	2 hours	1 hour
		$3^5/_8$" No. 16 gage steel studs at 16" on center or 2" × 4" wood studs at 16" on center. Where metal lath is used, attach to the exterior side of studs with minimum 1" long No. 6 drywall screws at 6" on center. Brick units of clay or shale not less than $2^5/_8$" thick complying with ASTM C 216				

15. Exterior or interior walls	15-2.4[d]	installed in accordance with Section 1405.6 with a minimum 1" airspace. Interior side covered with two layers of $^5/_8$" thick Type X gypsum wallboard. Bottom layer attached to studs with 1" long No. 6 drywall screws at 24" on center. Top layer attached to studs with $1^5/_8$" long No. 6 drywall screws at 12" on center.	---	---	$8^1/_2$	—
15. Exterior or interior walls (cont.)	15-3.1	One layer 1" thick liner panel, inserted between 2 ½" floor and ceiling runners with 2 ½" C-H, C-T or I-shape studs between panels. 2 layers of 5/8" Type X gypsum board or gypsum panel products applied parallel or at right angles to studs	---	---	3-3/4	---

		with 1" long drywall screws spaced 24" on center on base layer and 1-5/8" long drywall screws spaced 12" on center on face layer.				
15. Exterior or interior walls (cont.)	15-3.2	One layer 1" thick liner panel, inserted between 2 ½" floor and ceiling runners with 2 ½" C-H, C-T or I-shape studs between panels. 1 layer of 5/8" Type X gypsum board or gypsum panel products applied parallel or at right angles to each side of studs with 1" long drywall screws spaced 12" on center.	---	---	3-3/4	---

(Portions of table and footnotes not shown remain unchanged)

Reason: This proposal adds in two new configurations for wall assemblies to Table 721.1(2).
These assemblies are found in the latest edition of the Gypsum Association Fire-Resistance Design Manual (the first one is based on GA File Nos. WP 7054, WP 7058, WP 7060, WP 7065.2, WP 7065.4, WP 7065.5, WP 7076, WP 7078, and WP 7265; the second one is based on WP 7059, WP 7061, WP 7077, and WP 7257) and are consistent with UL designs (U415, U417, U438, U497, U498, V455, V473, and V493).

Inclusion of these additional configurations provide appropriate guidance for designers to achieve a 2-hour rating with a minimum assembly thickness of 3-3/4"

Cost Impact: Will not increase the cost of construction

The proposal adds additional options for the user of the code to meet current testing provisions and adds no new additional requirements to the code.

FS128-15 : T721.1-FISCHER5358

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee agreed that these assemblies did not qualify for a 2 hour rating, rather a 1 hour rating.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Mike Fischer, Kellen, representing The Gypsum Association requests Approve as Submitted.

Commenter's Reason: The proposal was recommended for disapproval by the committee based on a misread of the requirements on the second shaftwall item. One of the committee members asked about the proposed 2 hour rating, mistakenly reading that the proposed assembly contained only a single layer of 5/8" Type X Gypsum board; the requirement is for a layer of gypsum board on EACH side of studs.

FS128-15

FS135-15

803.11 (New)

Proposed Change as Submitted

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Building Code

Add new text as follows:

803.11 Laminated products factory-produced with a wood substrate Laminated products factory-produced with a wood substrate shall comply with one of the following:

1. The laminated product shall meet the criteria of Section 803.1.1 when tested in accordance with NFPA 286 using the product mounting system, including adhesive, of actual use, as described in Section 5.8 of NFPA 286.
2. The laminated product shall have a Class A, B, or C flame spread index and smoke developed index, based on the requirements of Table 803.1.1, in accordance with ASTM E84 or UL 723. Test specimen preparation and mounting shall be in accordance with ASTM E2579.

Add new standard(s) as follows: ASTM E2579-13 Standard Practice for Specimen Preparation and Mounting of Wood Products to Assess Surface Burning

Reason: This language has not yet been incorporated into the IFC (which did incorporate the language dealing with on site applied facings in IFC section 803.7), because it wanted the IBC to take the lead. ASTM has developed mounting methods for both "facings or wood veneer intended to be applied on site over a wood substrate" and laminated products that are factory-produced and have a wood substrate. The concept is that facings that are produced as part of a commercial (factory-produced) panel are finished products and the manufacturer should be responsible to ensure that the product itself (the full panel) is safe and there is no need to discuss a substrate. It has been shown that, when veneers are applied over a wood substrate the resulting flame spread is much higher than when applied over gypsum board or over a non-combustible substrate. Therefore the requirement in ASTM E2579 is that the testing be done with the full product and, thus, there will no need to retest for different substrates. Similarly, NFPA 286 contains a section that addresses testing of wall covering materials, including facings applied on site and laminated products produced in the factory. Facings applied on site over wood substrates are tested using ASTM E2404.
Note that this proposal is not intended to replace existing section 803.11 but to be incorporated between existing sections 803.10 and 803.12. Note also that the proposal to add a clarification of the requirements for facings or wood veneers intended to be applied on site over a wood substrate is also intended to be incorporated as a new section between existing sections 803.10 and 803.12.

NFPA 286 language

5.8 Wall or Ceiling Covering Materials.

5.8.2 Where the wall or ceiling covering system is a factory produced wall panel, the adhesive shall be the same one used in the manufacture of the factory-produced wall or ceiling panel.

ASM E2579 - Standard Practice for Specimen Preparation and Mounting of Wood Products to Assess Surface Burning

1. Scope

1.1 This practice describes procedures for specimen preparation and mounting when testing wood products to assess flame spread and smoke development as surface burning characteristics using Test Method E84.

1.2 This practice applies also to laminated products factory produced with a wood substrate (see 8.6). This practice does not apply to wood veneers or facings intended to be applied on site over a wood substrate, which are covered by Practice E2404.

1.3 Testing is conducted with Test Method E84.

ASTM E2404 – Standard Practice for Specimen Preparation and Mounting of Textile, Paper or Polymeric (Including Vinyl) Wall or Ceiling Coverings, and of Facings and Wood Veneers Intended to be Applied on Site Over a Wood Substrate, to Assess Surface Burning Characteristics

1. Scope

1.1 This practice describes procedures for specimen preparation and mounting when testing textile, paper or polymeric (including vinyl and expanded vinyl) wall or ceiling covering materials to assess flame spread and smoke development as surface burning characteristics using Test Method E84.

1.2 This practice applies also to facings or wood veneers intended to be applied on site over a wood substrate (see 8.7). This practice does not apply to laminated products factory produced with a wood substrate, which are covered by Practice E2579.

1.3 Testing is conducted with Test Method E84.

Cost Impact: Will not increase the cost of construction
Clarifies the mounting method for factory produced panels mounted on wood substrates.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E2579, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS135-15 : 803.11 (New)-HIRSCHLER4298

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The committee agreed that ASTM E2579 would be more appropriate for these products as it would be completely representative of the product makeup. Further, enforcement of these provisions is less burdensome as the code official and plan reviewer do not need to look at what specific substrate has been tested.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Kuma Sumathipala, American Wood Council , representing American Wood Council (ksumathipala@awc.org); Jason Smart, representing American Wood Council (jsmart@awc.org); Paul Coats, PE CBO, representing American Wood Council (pcoats@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

803.11 Laminated products factory-produced with a wood substrate ~~Laminated products factory-produced~~ Wall and ceiling finishes with ~~a wood substrate~~ factory-applied laminates shall comply with ~~one of the following:~~ Section 803.1

1. ~~The laminated product shall meet the criteria of Section 803.1.1 when tested in accordance with NFPA 286 using the product mounting system, including adhesive, of actual use, as described in Section 5.8 of NFPA 286.~~
2. ~~The laminated product shall have a Class A, B, or C flame spread index and smoke developed index, based on the requirements of Table 803.1.1, in accordance with ASTM E84 or UL 723. Test specimen preparation and mounting shall be in accordance with ASTM E2579.~~

Commenter's Reason: The code development committee approved FS 135-15 on the basis that "*ASTM E2579 would be more appropriate for these products as it would be representative of the complete makeup. Further, enforcement of these provisions is less burdensome as the code official and plan reviewers do not need to look at what specific substrate has been used*." However, ASTM E84 already requires the use of ASTM E2579 for the purpose of mounting wood products. As such, half of the committee's recommendation is already met without the need for a revision to the IBC. We concur with the second half of the committee's recommendation and this public comment preserves it. Additionally, it eliminates the redundancy of references to ASTM E84 and NFPA 286 by reference to Section 803.1. Furthermore, the proposed interior finish requirement should apply to all laminated products equally, including, but not limited to, wood products. ASTM E84 references several mounting methods, including ASTM E2579 for wood products, for multiple types of interior finish products. A reference to ASTM E84 automatically requires the suitable mounting method for all such types of products without the need for a direct reference from the IBC.

FS135-15

FS136-15

803.11 (New)

Proposed Change as Submitted

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Building Code

Add new text as follows:

803.11 Facings or wood veneers intended to be applied on site over a wood substrate Facings or veneers intended to be applied on site over a wood substrate shall comply with one of the following:

1. The facing or veneer shall meet the criteria of Section 803.1.1 when tested in accordance with NFPA 286 using the product-mounting system, including adhesive, as described in Section 5.9 of NFPA 286.
2. The facing or veneer shall have a Class A, B or C flame spread index and smoke-developed index, based on the requirements of Table 803.11, in accordance with ASTM E 84 or UL 723. Test specimen preparation and mounting shall be in accordance with ASTM E 2404.

Reason: This language has already been approved by the IFC (section 803.7). ASTM has developed mounting methods for both "facings or wood veneer intended to be applied on site over a wood substrate" and laminated products that are factory-produced and have a wood substrate. The IFC agreed to move ahead with this one (dealing with on site facings) but wanted the IBC to take the lead with the factory-produced ones. The concept is that these facings (applied on site) are basically the same as wall coverings and the manufacturer should be responsible for the facing only and needs to ensure that the material is safe and should test over the appropriate substrate. It has been shown that, when veneers are applied over a wood substrate the resulting flame spread is much higher than when applied over gypsum board or over a non-combustible substrate. Therefore the requirement in ASTM E2404 is that the testing be done over a standard wood substrate and, thus, there will no need to retest for different types of wood. Similarly, NFPA 286 contains a section that addresses testing of wall covering materials, including facings applied on site and laminated products produced in the factory. Panels including factory applied facings with wood substrates are tested using ASTM E2579.
Note that this proposal is not intended to replace existing section 803.11 but to be incorporated between existing sections 803.10 and 803.12. Note also that the proposal to add a clarification of the requirements for laminated products factory-produced with a wood substrate is also intended to be incorporated as a new section between existing sections 803.10 and 803.12.

NFPA 286 language

5.9 Laminated Products with Wood Substrates.

5.9.1 Laminated products shall be tested as they are intended to be installed.

5.9.1.1 The test specimens shall consist of the finished product, namely the combination of the facing or veneer, the adhesives or fasteners used, and the specific wood substrate that will be used.

5.9.2 If the laminated product consists of a facing or veneer intended to be applied on-site over a wood substrate, the facing or veneer shall be tested as described in 5.9.2.1 and 5.9.2.2.

5.9.2.1* The test specimens shall comply with the following:

(1) Specimens shall consist of the facing or veneer mounted on the "A" face of nominal 12 mm (15⁄32 in.) untreated plywood with a face veneer of Douglas fir.

(2) The plywood shall comply with NIST Voluntary Product Standard PS 1, Structural Plywood.

(3) The plywood shall carry one of the following grade stamps: (a) APA-The Engineered Wood Association (b) TECO, indicating that the plywood has been graded PS 1 A-B and is for exterior exposure (c) CSA Standard O121, Douglas Fir Plywood.

5.9.2.2 The adhesive used to attach the facing or veneer to the wood substrate in 5.9.2.1 shall be that specified by the manufacturer of the facing or veneer and applied in accordance with manufacturer's application instructions.

Also, for information, from NFPA 286:

5.8.9 Wall or Ceiling Coverings Intended to Be Applied over a Wood Substrate. If the wall or ceiling coverings are intended to be applied over a wood substrate, the specimens shall consist of the wall or ceiling covering mounted on untreated plywood, with a face veneer of Douglas fir. The plywood shall have the same thickness as the wood substrate used in actual installations, and shall comply with NIST Voluntary Product Standard PS 1-07, Structural Plywood. The plywood shall be marked with a grade stamp indicating that the plywood has been graded PS 1-07 A-B and is for exterior exposure. The grade stamp shall be issued by a quality control agency. Alternatively, the plywood shall be permitted to be stamped as conforming to CSA Standard O121, Douglas Fir Plywood.

ASTM E2404 – Standard Practice for Specimen Preparation and Mounting of Textile, Paper or Polymeric (Including Vinyl) Wall or Ceiling Coverings, and of Facings and Wood Veneers Intended to be Applied on Site Over a Wood Substrate, to Assess Surface Burning Characteristics

1. Scope

1.1 This practice describes procedures for specimen preparation and mounting when testing textile, paper or polymeric (including vinyl and expanded vinyl) wall or ceiling covering materials to assess flame spread and smoke development as surface burning characteristics using Test Method E84.

1.2 This practice applies also to facings or wood veneers intended to be applied on site over a wood substrate (see 8.7). This practice does not apply to laminated products factory produced with a wood substrate, which are covered by Practice E2579.

1.3 Testing is conducted with Test Method E84.

ASM E2579 - Standard Practice for Specimen Preparation and Mounting of Wood Products to Assess Surface Burning Characteristics

1. Scope

1.1 This practice describes procedures for specimen preparation and mounting when testing wood products to assess flame spread and smoke development as surface burning characteristics using Test Method E84.

1.2 This practice applies also to laminated products factory produced with a wood substrate (see 8.6). This practice does not apply to wood veneers or facings intended to be applied on site over a wood substrate, which are covered by Practice E2404.

1.3 Testing is conducted with Test Method E84.

Cost Impact: Will not increase the cost of construction
This clarifies the testing protocol.

FS136-15 : 803.11 (New)-HIRSCHLER4299

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The committee agreed that this proposal provides consistency with the International Fire Code and that testing in accordance with ASTM E2404 was appropriate in that facings are required to be tested over a wood substrate, which will yield conservative results.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Kuma Sumathipala, representing American Wood Council (ksumathipala@awc.org); Jason Smart, American Wood Council, representing American Wood Council (jsmart@awc.org); Paul Coats, PE CBO, representing American Wood Council (pcoats@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org) requests Disapprove.

Commenter's Reason: The code development committee approved FS 136-15 as "*this proposal provided consistency with the International Fire Code and that testing in accordance with ASTM E2404 was appropriate in that facings are required to be tested over a wood substrate, which will yield conservative results*." However, ASTM E84 already requires the use of ASTM E2404 for the purpose of mounting paper, polymeric and textile wall and ceiling covering materials, facings or wood veneers intended to be applied on-site over a wood substrate. As such, the reference to ASTM E84 in Section 803.1.1 inherently prescribes ASTM E2404 as intended by the code development committee. Furthermore, FS 136-15 creates potential conflicts within the IBC by contradicting Section 803.2, which exempts material having a thickness less than 0.036 inches applied directly to the surface of walls or ceilings. Additionally, the proposal's title refers to "facings or *wood* veneers" while the rest of the proposed text refers to just "facings or veneers," creating further confusion. The code development committee supported this proposal, in part, for providing consistency with the IFC. It does not. The proposed text for the IBC is inconsistent with that in the IFC (Section 803.7).

FS136-15

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803.1, 803.1.1, 803.1.1.1 (New), 803.1.2, 803.1.2.1, 803.1.3, 803.1.3.1, 803.1.4, 803.5, 803.5.1 (New), 803.5.1.1 (New), 803.5.2 (New), 803.6, 803.7, 803.8, 803.9, 803.11

Proposed Change as Submitted

Proponent : Marcelo Hirschler, GBH International, representing GBH International (gbhint@aol.com)

2015 International Building Code

Revise as follows:

803.1 General. *Interior wall and ceiling finish* materials shall be classified for fire performance and smoke development in accordance with Section 803.1.1 or 803.1.2, except as shown in Sections ~~803.2~~ 803.1.3 through 803.13. Materials tested in accordance with Section ~~803.1.2~~ 80 3.1.1 shall not be required to be tested in accordance with Section ~~803.1.1~~ 803.1.2.

803.1.1 Interior wall and ceiling finish materials~~.~~ tested in accordance with NFPA 286 Interior wall and ceiling finish materials shall be classified in accordance with ~~ASTM E 84 or UL 723~~ NFPA 286 and comply with Section 803.1.1.1. ~~Such *interior finish* materials~~ Materials complying with Section 803.1.1.1 shall be ~~grouped in~~ considered to also comply with the ~~following classes in accordance with their flame spread and *smoke-developed indexes.*~~
requirements of a Class ~~A:= Flame spread index 0-25; smoke developed index 0-450.~~
~~Class B:= Flame spread index 26-75; smoke developed index 0-450.~~
~~Class C:= Flame spread index 76-200; smoke developed index 0-450.~~

~~**Exception:** Materials tested~~ , in accordance with Section 803.1.2.

Add new text as follows:

803.1.1.1 Acceptance Criteria for NFPA 286 The interior finish shall comply with the following:

1. During the 40 kW exposure, flames shall not spread to the ceiling.
2. The flame shall not spread tot he outer extremity of the sample on any wall or ceiling.
3. Flashover, as defined in NFPA 286, shall not occur.
4. The peak heat release rate throughout the test shall not exceed 800 kW.
5. The total smoke released throughout the test shall not exceed 1,000 m^2.

Revise as follows:

803.1.2 ~~Room corner test for interior~~ Interior wall or ceiling finish materials~~.~~ tested in accordance with ASTM E84 or UL 723
Interior wall ~~or~~ and ceiling finish materials shall be ~~permitted to~~ classified in

accordancew ith ASTM E 84 or UL 723. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indexes.
Class A: = Flame spread index 0-25; smoke-developed index 0-450.
Class B: = Flame spread index 26-75; smoke-developed index 0-450.
Class C: - Flame spread index 76-200; smoke-developed index 0-450.

Exception: Materials tested in accordance with ~~NFPA 286. Interior wall or ceiling finish materials tested~~ Section 803.1.1 and as indicated in ~~accordance with NFPA 286 shall comply with Section 803.1.2.1.~~ Sections 803.1.3 through 803.13.

~~**803.1.2.1 Acceptance criteria for NFPA 286.** The interior finish shall comply with the following:~~

1. ~~During the 40 kW exposure, flames shall not spread to the ceiling.~~
2. ~~The flame shall not spread to the outer extremity of the sample on any wall or ceiling.~~
3. ~~Flashover, as defined in NFPA 286, shall not occur.~~
4. ~~The peak heat release rate throughout the test shall not exceed 800 kW.~~
5. ~~The total smoke released throughout the test shall not exceed 1,000 m^2.~~

803.1.3 ~~Room corner test for textile~~ Interior wall ~~coverings~~ and ~~expanded vinyl wall coverings.~~ ceiling finish materials with different requirements ~~Textile wall coverings and expanded vinyl wall coverings~~
The materials indicated in Sections 803.2 through 803.13 shall ~~meet the criteria of Section 803.1.3.1 when~~ be tested as indicated in the ~~manner intended for use in accordance with the Method B protocol of NFPA 265 using the product mounting system, including adhesive.~~ corresponding sections.

~~**803.1.3.1 Acceptance criteria for NFPA 265.** The interior finish shall comply with the following:~~

1. ~~During the 40 kW exposure, flames shall not spread to the ceiling.~~
2. ~~The flame shall not spread to the outer extremities of the samples on the 8-foot by 12-foot (203 by 305 mm) walls.~~
3. ~~Flashover, as defined in NFPA 265, shall not occur.~~
4. ~~The total smoke released throughout the test shall not exceed 1,000 m^2.~~

~~**803.1.4 Acceptance criteria for textile and expanded vinyl wall or ceiling coverings tested to ASTM E 84 or UL 723.** Textile wall and ceiling coverings and expanded vinyl wall and ceiling coverings shall have a Class A flame spread index in accordance with ASTM E 84 or UL 723 and be protected by an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2. Test specimen preparation and mounting shall be in accordance with ASTM E 2404.~~

803.5 Textile wall coverings. Where used as interior wall finish materials, textile wall coverings, including materials having woven or nonwoven, napped, tufted, looped or similar surface and carpet and similar textile materials, shall be tested in the manner intended for use, using the product

mounting system, including adhesive, and shall comply with the requirements of one of the following: Section ~~803.1.2~~ 803.1.1, ~~803.1.3~~ Section 803.5.1 or ~~803.1.4~~ Section 803.5.2.

Add new text as follows:

803.5.1 Room corner test for textile wall coverings and expanded vinyl wall coverings Textile wall coverings and expanded vinyl wall coverings shall meet the criteria of Section 803.5.1.1 when tested in the manner intended for use in accordance with the Method B protocol of NFPA 265 using the product mounting system, including adhesive.

803.5.1.1 Acceptance Criteria for NFPA 265 The interior finish shall comply with the following:

1. During the 40 kW exposure, flames shalln ot spread to the ceiling.
2. The flame shall not spread to the outer extremities of the samples on the 8-foot by 12-foot (203 by 305 mm) walls.
3. Flashover, as defined in NFPA 265, shall not occur.
4. The total smoke release throughout the test shall not exceed 1,000 m^2.

803.5.2 Acceptance Criteria for textile and expanded vinyl wall or ceiling coverings tested to ASTM E 84 or UL 723 Textile wall and ceiling coverings and expanded vinyl wall and ceiling coverings shall have a Class A flame spread index in accordance with ASTM E 84 or UL 723 and be protected by an automatic sprinkler system installed in accordance with Section 903.1.1 or 903.1.2. Test specimen preparation and mounting shall be in accordance with ASTM E 2404.

Revise as follows:

803.6 Textile ceiling coverings. Where used as interior ceiling finish materials, textile ceiling coverings, including materials having woven or nonwoven, napped, tufted, looped or similar surface and carpet and similar textile materials, shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of Section ~~803.1.2~~ 803.1.1 or ~~803.1.4~~ of Section 803.5.2.

803.7 Expanded vinyl wall coverings. Where used as interior wall finish materials, expanded vinyl wall coverings shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of one of the following: Section ~~803.1.2~~ 803.1.1, ~~803.1.3~~ Section 803.5.1 or ~~803.1.4~~ Section 803.5.2.

803.8 Expanded vinyl ceiling coverings. Where used as interior ceiling finish materials, expanded vinyl ceiling coverings shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of Section ~~803.1.2~~ 803.1.1 or ~~803.1.4~~ Section 803.5.2.

803.9 High-density polyethylene (HDPE) and polypropylene (PP). Where high-density polyethylene or polypropylene is used as an interior finish it shall comply with Section ~~803.1.2~~ 803.1.1.

803.11 Interior finish requirements based on group. *Interior wall*

and ceiling finish shall have a flame spread index not greater than that specified in Table 803.11 for the group and location designated. *Interior wall and ceiling finish* materials tested in accordance with NFPA 286 and meeting the acceptance criteria of Section ~~803.1.2.1~~ 803.1.1.1, shall be permitted to be used where a Class A classification in accordance with ASTM E 84 or UL 723 is required.

Reason: This reorganizes section 803 to make it follow the testing logic, but it does not change any of the requirements.
Any interior wall and ceiling finish material is permitted to be tested to NFPA 286 and therefore this should come first, as section 803.1.1. This needs to be followed by the criteria for NFPA 286 testing. The section also needs to say that anything that passes NFPA 286 (i.e. the corresonding criteria) is acceptable as a Class A in accordance with ASTM E84 and does not need retesting. Then comes the section on ASTM E84, with the corresponding criteria, as section 803.1.2.

The next section, 803.1.3, addresses the materials that have other requirements and cannot simply be tested to either one of the above without further details. That includes all of the materials in sections 803.2 through 803.13.

Textile wall coverings and expanded vinyl wall coverings are covered in 803.5 and 803.7. Therefore the testing in accordance with NFPA 265 needs to move to those sections and that is being done. When dealing with expanded vinyl wall coverings the criteria are not repeated but just reference the textile wall coverings section.

Textile and expanded vinyl ceiling coverings stay as is, just with the section reference changed. The same is true for HDPE and PP.

The only other change is the section reference in 803.11, again without changing requirements.

Table 803.1 does not need any changes.

In order to ensure that the proposed reorganization appears in the correct order, I attach a copy of the final text as it should read, legislative language. The text as it should read, in its final form is shown below:

Section 803, as proposed for IBC 2018, in final form

803.1 General. Interior wall and ceiling finish materials shall be classified for fire performance and smoke development in accordance with Section 803.1.1 or 803.1.2, except as shown in Sections 803.1.3 through 803.13. Materials tested in accordance with Section 803.1.1 shall not be required to be tested in accordance with Section 803.1.2.

803.1.1 Interior wall and ceiling finish materials tested in accordance with NFPA 286. Interior wall and ceiling finish materials shall be classified in accordance with NFPA 286 and comply with Section 803.1.1.1. Materials complying with Section 803.1.1.1 shall be considered also to comply with the requirements of a Class A in accordance with Section 803.1.2.

803.1.1.1 Acceptance criteria for NFPA 286. The interior finish shall comply with the following:
1. During the 40 kW exposure, flames shall not spread to the ceiling.
2. The flame shall not spread to the outer extremity of the sample on any wall or ceiling.
3. Flashover, as defined in NFPA 286, shall not occur.
4. The peak heat release rate throughout the test shall not exceed 800 kW.
5. The total smoke released throughout the test shall not exceed 1,000 m^2.

803.1.2 Interior wall and ceiling finish materials tested in accordance with ASTM E84 or UL 723. Interior wall and ceiling finish materials shall be classified in accordance with ASTM E 84 or UL 723. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indexes.
Class A: = Flame spread index 0-25; smoke developed index 0-450.
Class B: = Flame spread index 26-75; smoke developed index 0-450.
Class C: = Flame spread index 76-200; smoke developed index 0-450.

Exception: Materials tested in accordance with Section 803.1.1 and as indicated in Section 803.1.3 through 803.13.

803.1.3 Interior wall and ceiling finish materials with different requirements. The materials indicated in Sections 803.2 through 803.13 shall be tested as indicated in the corresponding sections.

803.2 Thickness exemption. Materials having a thickness less than 0.036 inch (0.9 mm) applied directly to the surface of walls or ceilings shall not be required to be tested.

803.3 Heavy timber exemption. Exposed portions of building elements complying with the requirements for buildings of Type IV construction in Section 602.4 shall not be subject to interior finish requirements.

803.4 Foam plastics. Foam plastics shall not be used as interior finish except as provided in Section 2603.9. This section shall apply both to exposed foam plastics and to foam plastics used in conjunction with a textile or vinyl facing or cover.

803.5 Textile wall coverings. Where used as interior wall finish materials, textile wall coverings, including materials having woven or nonwoven, napped, tufted, looped or similar surface and carpet and similar textile materials, shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of one of the following: Section 803.1.1, Section 803.5.1 or Section 803.5.2.

803.5.1 Room corner test for textile wall coverings and expanded vinyl wall coverings. Textile wall coverings and expanded vinyl wall coverings shall meet the criteria of Section 803.5.1.1 when tested in the manner intended for use in accordance with the Method B protocol of NFPA 265 using the product-mounting system, including adhesive.

8**03.5.1.1 Acceptance criteria for NFPA 265**. The interior finish shall comply with the following:
1. During the 40 kW exposure, flames shall not spread to the ceiling.
2.The flame shall not spread to the outer extremities of the samples on the 8-foot by 12-foot (203 by 305 mm) walls.
3. Flashover, as defined in NFPA 265, shall not occur.
4. The total smoke released throughout the test shall not exceed 1,000 m2.

803.5.2 Acceptance criteria for textile and expanded vinyl wall or ceiling coverings tested to ASTM E 84 or UL 723. Textile wall and ceiling coverings and expanded vinyl wall and ceiling coverings shall have a Class A flame spread index in accordance with ASTM E 84 or UL 723 and be protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. Test specimen preparation and mounting shall be in accordance with ASTM E 2404.

803.6 Textile ceiling coverings. Where used as interior ceiling finish materials, textile ceiling coverings, including materials having woven or nonwoven, napped, tufted, looped or similar surface and carpet and similar textile materials, shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of Section 803.1.1 or of Section 803.5.2.

803.7 Expanded vinyl wall coverings. Where used as interior wall finish materials, expanded vinyl wall coverings shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of one of the following: Section 803.1.1, Section 803.5.1 or Section 803.5.2.

803.8 Expanded vinyl ceiling coverings. Where used as interior ceiling finish materials, expanded vinyl ceiling coverings shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of Section 803.1.1 or of Section 803.5.2.

803.9 High-density polyethylene (HDPE) and polypropylene (PP). Where high-density polyethylene or polypropylene is used as an interior finish it shall comply with Section 803.1.1.

803.10 Site-fabricated stretch systems. Where used as interior wall or interior

ceiling finish materials, site-fabricated stretch systems containing all three components described in the definition in Chapter 2 shall be tested in the manner intended for use, and shall comply with the requirements of Section 803.1.1 or 803.1.2. If the materials are tested in accordance with ASTM E 84 or UL 723, specimen preparation and mounting shall be in accordance with ASTM E 2573.

803.11 Interior finish requirements based on group. Interior wall and ceiling finish shall have a flame spread index not greater than that specified in Table 803.11 for the group and location designated. Interior wall and ceiling finish materials tested in accordance with NFPA 286 and meeting the acceptance criteria of Section 803.1.1.1, shall be permitted to be used where a Class A classification in accordance with ASTM E 84 or UL 723 is required.

803.12 Stability. Interior finish materials regulated by this chapter shall be applied or otherwise fastened in such a manner that such materials will not readily become detached where subjected to room temperatures of 200°F (93°C) for not less than 30 minutes.

803.13 Application of interior finish materials to fire resistance-rated or noncombustible building elements.
Where interior finish materials are applied on walls, ceilings or structural elements required to have a fire-resistance rating or to be of noncombustible construction, these finish materials shall comply with the provisions of this section.

803.13.1 Direct attachment and furred construction. Where walls and ceilings are required by any provision in this code to be of fire-resistance-rated or noncombustible construction, the interior finish material shall be applied directly against such construction or to furring strips not exceeding 13/4 inches (44 mm), applied directly against such surfaces.

803.13.1.1 Furred construction. If the interior finish material is applied to furring strips, the intervening spaces between such furring strips shall comply with one of the following:
1. Be filled with material that is inorganic or noncombustible;
2. Be filled with material that meets the requirements of a Class A material in accordance with Section 803.1.1 or 803.1.2; or
3. Be fire-blocked at a maximum of 8 feet (2438 mm) in every direction in accordance with Section 718.

803.13.2 Set-out construction. Where walls and ceilings are required to be of fire-resistance-rated or noncombustible construction and walls are set out or ceilings are dropped distances greater than specified in Section 803.13.1, Class A finish materials, in accordance with Section 803.1.1 or 803.1.2, shall be used.

Exceptions:
1. Where interior finish materials are protected on both sides by an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
2. Where interior finish materials are attached to noncombustible backing or furring strips installed as specified in Section 803.13.1.1.

803.13.2.1 Hangers and assembly members. The hangers and assembly members of such dropped ceilings that are below the horizontal fire-resistance-rated floor or roof assemblies shall be of noncombustible materials. The construction of each set-out wall and horizontal fire-resistance-rated floor or roof assembly shall be of fire-resistance-rated construction as required elsewhere in this code.

Exception: In Type III and V construction, fire retardant-treated wood shall be permitted for use as hangers and assembly members of dropped ceilings.

803.13.3 Heavy timber construction. Wall and ceiling finishes of all classes as permitted in this chapter that are installed directly against the wood decking or planking of Type IV construction or to wood furring strips applied directly to the wood decking or planking shall be fire-blocked as specified in Section 803.13.1.1.

803.13.4 Materials. An interior wall or ceiling finish material that is not more than 1/4 inch (6.4 mm) thick shall be applied directly onto the wall, ceiling or structural element without the use of furring strips and shall not be suspended away from the building element to which that finish material it is applied.

Exceptions:

1. Noncombustible interior finish materials.
2. Materials that meet the requirements of Class A materials in accordance with Section 803.1.1 or 803.1.2 where the qualifying tests were made with the material furred out from the noncombustible backing shall be permitted to be used with furring strips.
3. Materials that meet the requirements of Class A materials in accordance with Section 803.1.1 or 803.1.2 where the qualifying tests were made with the material suspended away from the noncombustible backing shall be permitted to be used suspended away from the building element.

Cost Impact: Will not increase the cost of construction
This is simply a reorganization without changing requirements.

FS139-15 : 803.1-HIRSCHLER3573

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The committee approved this change based on the following: moving NFPA 286 to the beginning of the section is editorial, is appropriate for more product and removes redundant language; ASTM E84 remains an option for materials to meet; and the section as a whole becomes more enforceable as it is more easily understood.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Kuma Sumathipala, representing American Wood Council (ksumathipala@awc.org); Jason Smart, representing American Wood Council (jsmart@awc.org); Paul Coats, PE CBO, representing American Wood Council (pcoats@awc.org); Sam Francis, representing American Wood Council (sfrancis@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org) requests Disapprove.

Commenter's Reason: The code development committee approved FS 139-15 because "*moving NFPA 286 to the beginning of this section is editorial, is appropriate for more product and removes redundant language; ASTM E84 remains an option for materials to meet, and the section as a whole becomes more enforceable as it is more easily understood.*"
As currently written in the International Building Code, the International Residential Code, the International Fire Code, and the International Existing Building Code, the regulatory test for interior finish is ASTM E84. NFPA 286 is allowed as an option. This proposal changes that for the IBC, creating an inconsistency between the sets of International codes. Additionally, the vast majority of commercially available interior finish have been tested to ASTM E84, not NFPA 286 and, as such, it is important maintain ASTM E84 as the primary test method while allowing NFPA 286 as an alternate. This proposal reverses that for no valid technical reason. To evaluate performance, NFPA 286 requires the test specimen to be applied to walls and ceiling of a test room even if the test material is not intended as interior finish for both

walls and ceilings. Accordingly, NFPA 286 is best suited for evaluating a narrow class of materials that are intended to be applied on walls as well as ceilings. Therefore it is inappropriate to make NFPA 286 the primary test for assessing all interior finish materials.

FS139-15

FS142-15
909.20.1

Proposed Change as Submitted

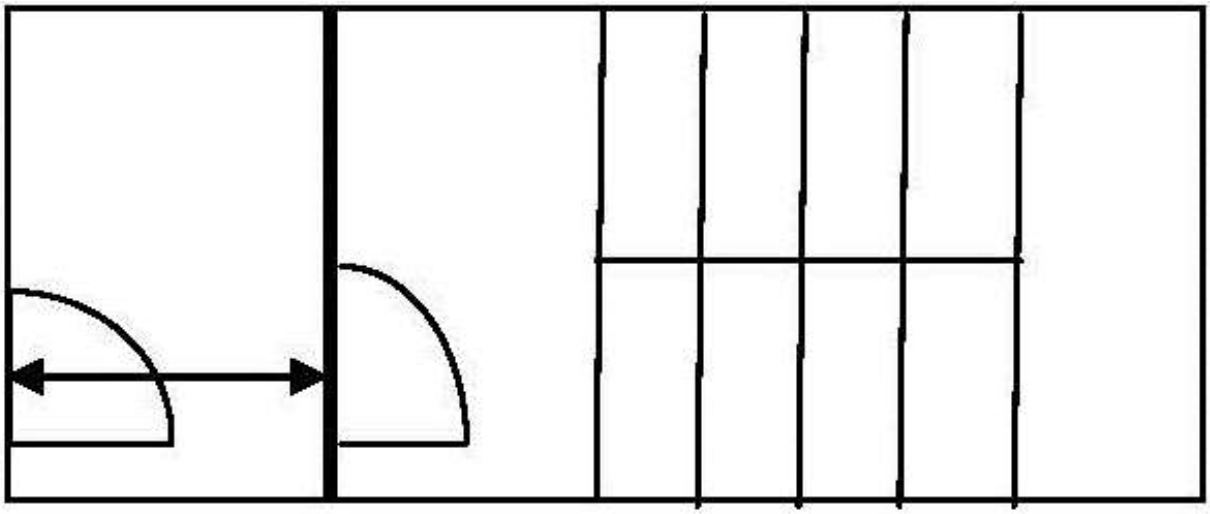
Proponent : Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

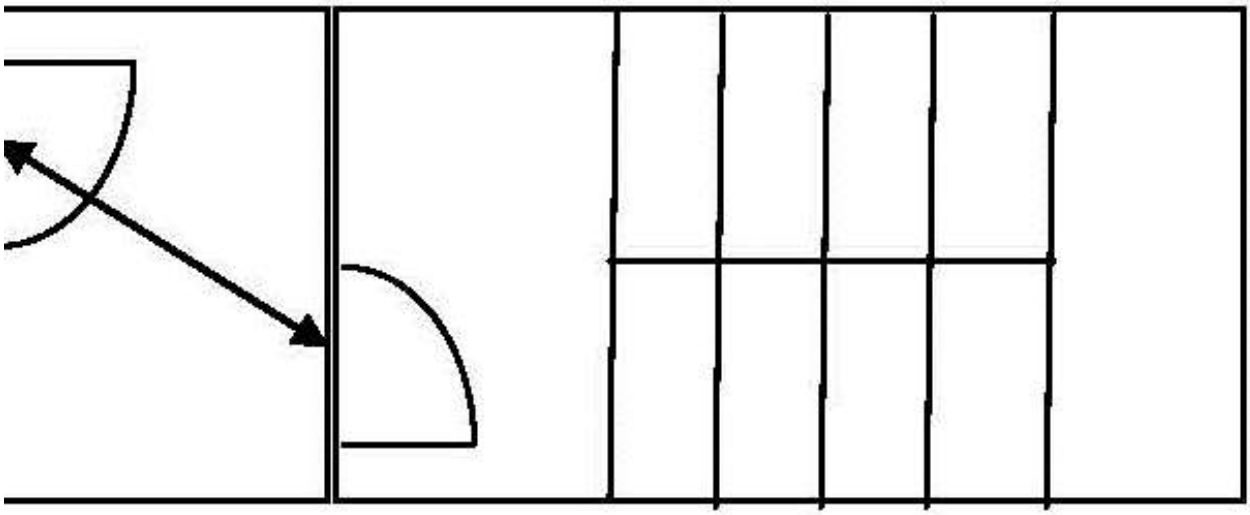
2015 International Building Code

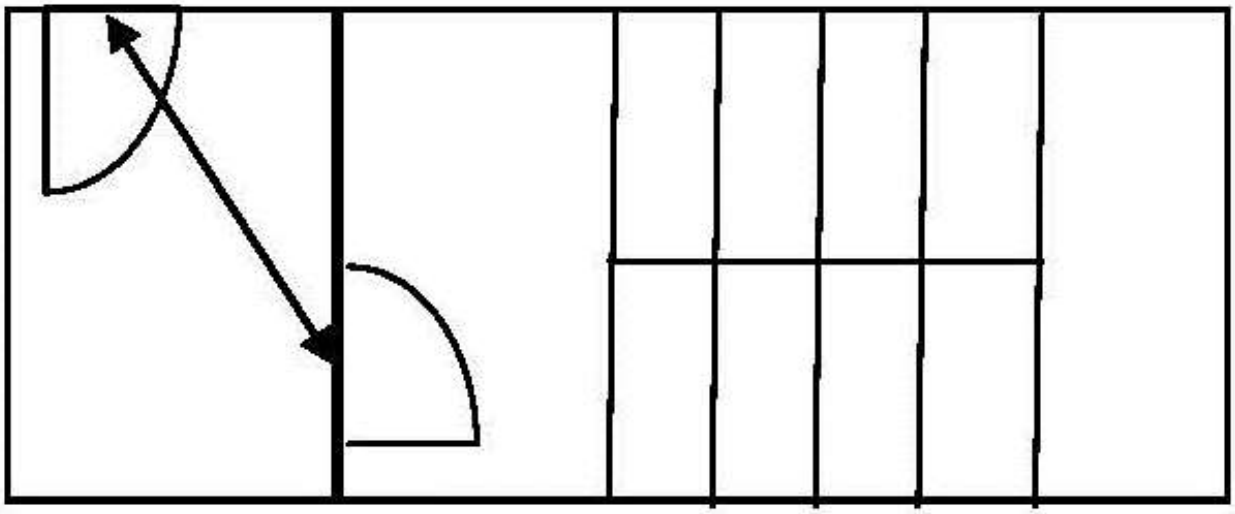
Revise as follows:

909.20.1 Access. Access to the *stairway* or *ramp* shall be by way of a vestibule or an open exterior balcony. The minimum dimension of the vestibule shall be not less than the required width of the *corridor* leading to the vestibule but shall not have a clear width of less than 44 inches (1118 mm) and shall not have a length of less than 72 inches (1829 mm) in the direction of egress travel into the stairway between the centerline of the doorways into the vestibule and stairway.

Reason: The proposed code change seeks to clarify the dimensional requirements in vestibules used to access stairway doors in smoke proof enclosures. A smoke proof enclosure is an interior exit stairway that is protected with a two-hour fire barrier and incudes a vestibule separating the occupied story from the stairway. The vestibule seeks to keep smoke from migrating into the stairway portion due to egress by occupants and due to fire fighting operations. The dimensional requirements for the vestibule seek to allow sufficient distance between the doorway into the vestibule and into the stairway such that both doorways are not open at the same time. Additionally the vestibule provides fire fighters with a safe area to attack a fire on the fire floor without compromising the smoke proof integrity of the stairway. Both the handbook and the commentary conservatively dimension the 72 inch dimension to be perpendicular to the access doorway into the stairway from the vestibule. If the two doorways are not in line, offset or perpendicular to one another the direction of travel into the vestibule, within the vestibule and into the stairway can change and it does not appear reasonable to require 72 inch by 72 inch vestibules if sufficient space is provided to clear the doorways arcs. The code change also requires that the 44 inch width be a clear width for consistency with the requirements in Section 1003.3.3 in the event a standpipe is placed within the vestibule or pressurization ductwork is located within the vestibule.
Please see the atached figures that address possible configurations of vestibules that are addressed by this code change.







Cost Impact: Will not increase the cost of construction

This code change may reduce the size of vestibules thereby increasing useable floor area.

FS142-15 : 909.20.1-FATTAH5006

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this item based on the following: the proposal does not seem to fix anything; the measurement on the vestibule length is confusing and should possibly require measurement from the face of the doors rather than the centerline; this might be better handled in the commentary with figures.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

909.20.1 Access. Access to the *stairway* or *ramp* shall be by way of a vestibule or an open exterior balcony. The minimum dimension of the vestibule shall be not less than the required width of the *corridor* leading to the vestibule but shall not have a clear width of less than 44 inches (1118 mm)~~ and shall not have a length of less than 72 inches (1829 mm) in the direction of egress travel into the stairway~~ . The distance between the centerline of the ~~doorways into~~ doorway entering the vestibule and the centerline of the doorway entering the stairway shall not be less than 72 inches (1829 mm) when measured between the face of each doorway on the vestibule ~~and stairway~~ side.

Commenter's Reason: The public comment is submitted to address feedback provided by opponents and the committee at the committee action hearing. Not all issues were addressed since some did not appear to be applicable.
The intent of the IBC is to ensure adequate space for fire fighting staging in smokeproof enclosure vestibules and to prevent smoke from entering the stairway portion of the enclosure. The vestibule serves as a buffer between the building and the stairway and as a result the proposed code change seeks to prohibit a configuration where both the vestibule door and the stairway door can be opened at the same time. Additionally the code intends for the doors to be separated to allow fire fighters to stage in the vestibule and continue moving forward as opposed to Figure B where they have to turn right, close the vestibule door, hook up to the standpipe in te vestibule and then enter the floor out of the vestibule.

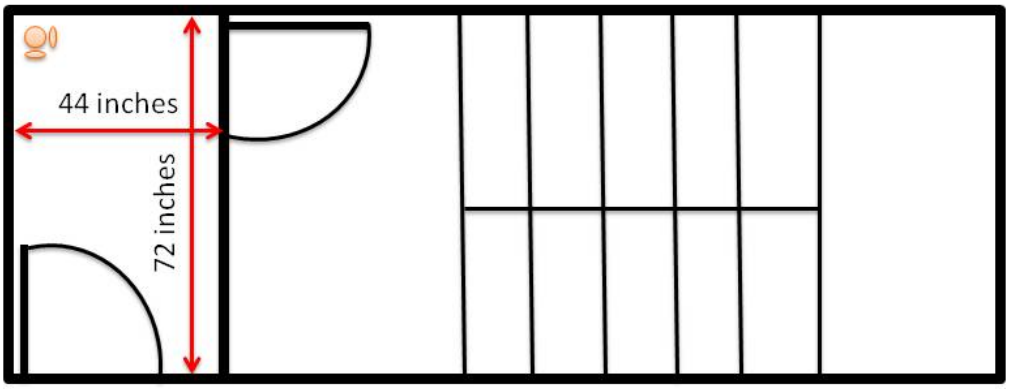
The text of the section is being rearranged to separate the minimum clear width from the second concept which is the separation between the doors. Reference to door face was added in response to feedback from opponents.

One comment raised by oponents was that the proposed code change would violate accessibilty requirements for vestibules with doors in series in chapter 11. After

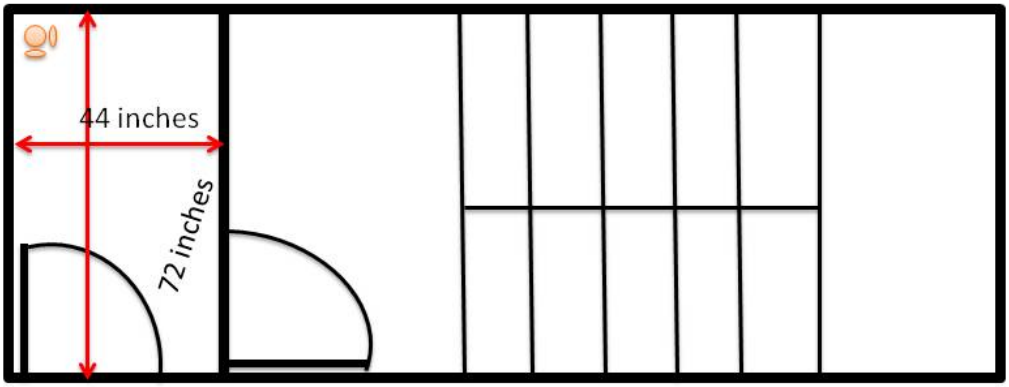
reviewing the IBC and ANSI A117.1 Chapter 4 it appears accessible route implies wheelchair access to something and unless there is a refuge area in a stairway an accessible rout is not required. Figure C to Section 402.5 requires the door width plus 48 inches which exceeds 72 inches, and as a result it is not apparent that the 72 inch dimension intended by the IBC or legacy codes in editions that preceded accessible means of egress intended for the vestibule to be accessible. This issues is not addressed in the code change.

Additional improved figures have been added to improve clarity of the intrended code change that inendss to add a clarification and not a change in requirements.

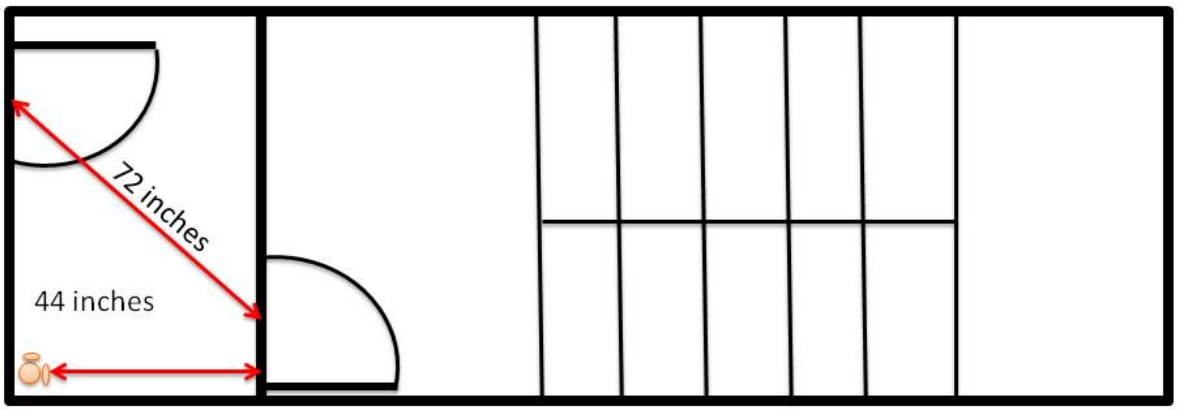
FS 142-15 Figure A
2015 IBC Code Complying



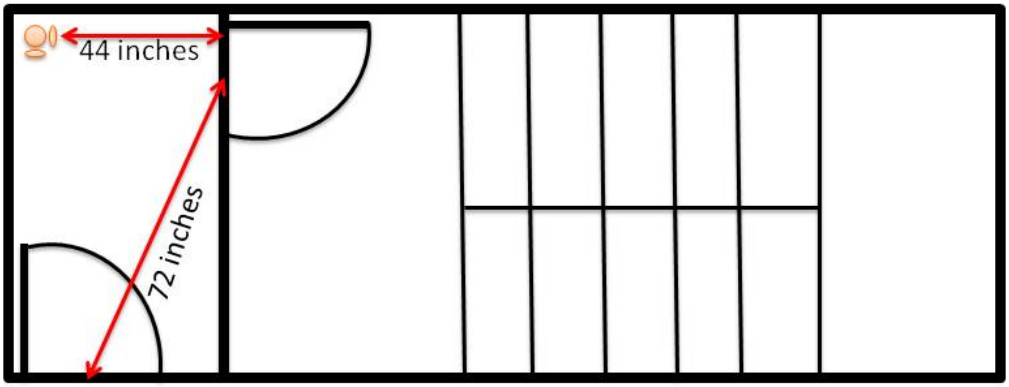
FS 142-15 Figure B
2015 IBC Code Complying



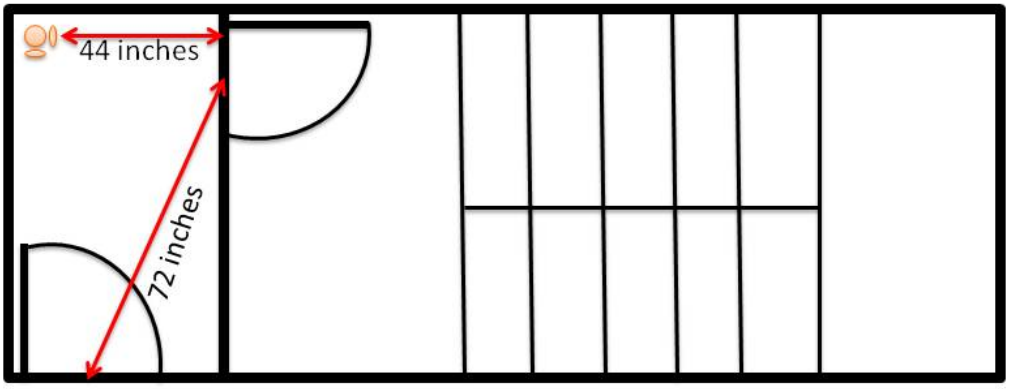
FS 142-15 Figure C
Proposed Code Change

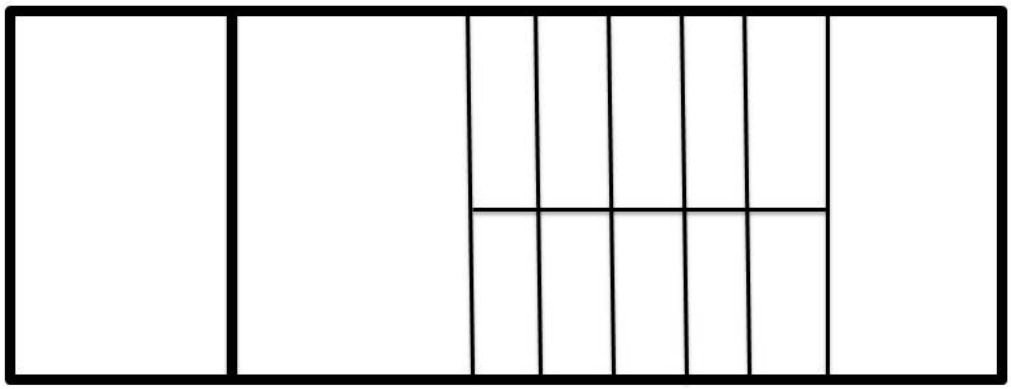


FS 142-15 Figure D
Proposed Code Change

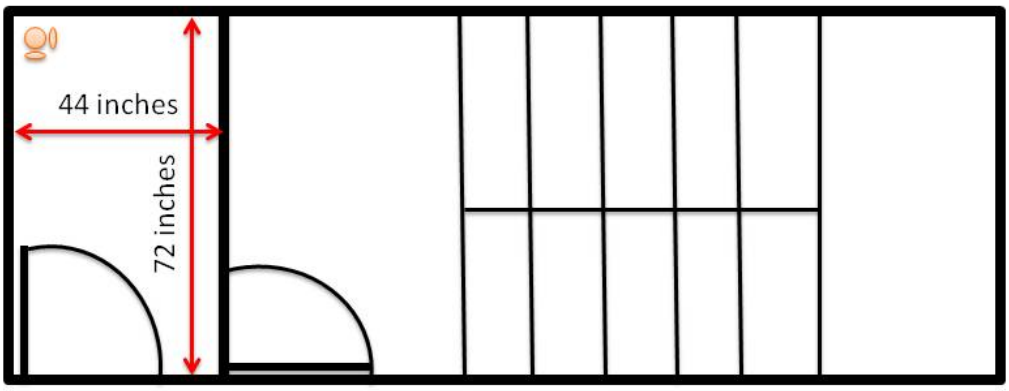


FS 142-15 Figure E
Proposed Code Change





FS 142-15 Figure B
2015 IBC Code Complying



FS147-15
1403.5

Proposed Change as Submitted

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Building Code

Revise as follows:

1403.5 Vertical and lateral flame propagation. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible *water-resistive barrier*_ shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. For the purposes of this section, fenestration products and flashing of fenestration products shall not be considered part of the *water-resistive barrier*.

Exceptions:

1. Walls in which the *water-resistive barrier* is the only combustible component and the *exterior wall* has a wall covering of brick, concrete, stone, terra cotta, stucco or steel with minimum thicknesses in accordance with Table 1405.2.
2. Walls in which the *water-resistive barrier* is the only combustible component and the *water-resistive barrier* complies with the following: (a) It has a peak heat release rate of less than 150 kW/m^2, a total heat release of less than 20 MJ/m^2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM ~~E 1354 and has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E 84 or UL 723~~ E1354. The ASTM ~~E 1354~~ E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2. (b) It has a flame spread index of 25 or less and a smoke developed index of 450 or less as determined in accordance with ASTM E84 or UL 723, when tested using Type X gypsum board as the substrate.

Reason: Exception 2 was added during the cycle leading to IBC 2015. There has been a lot of concern that insufficient clarification exists as to how to test the water-resistive barriers with ASTM E84, since the substrate used will affect the test results, particularly for this materials. The proposed clarification should make it clear that Type X gypsum board should be used as the substrate.

Cost Impact: Will not increase the cost of construction
This is clarification regarding the testing protocol and will not change the materials involved.

FS147-15 : 1403.5-HIRSCHLER4297

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that additional justification was required to justify the proposed substrate material of Type X gypsum board.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1403.5 Vertical and lateral flame propagation. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible *water-resistive barrier* shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. For the purposes of this section, fenestration products and flashing of fenestration products shall not be considered part of the *water-resistive barrier*.

Exceptions:

1. Walls in which the *water-resistive barrier* is the only combustible component and the *exterior wall* has a wall covering of brick, concrete, stone, terra cotta, stucco or steel with minimum thicknesses in accordance with Table 1405.2.
2. Walls in which the *water-resistive barrier* is the only combustible component and the *water-resistive barrier* complies with the following: (a) It has a peak heat release rate of less than 150 kW/m^2, a total heat release of less than 20 MJ/m^2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E1354. The ASTM E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2. (b) It has a flame spread index of 25 or less and a smoke developed index of 450 or less as determined in accordance with ASTM E84 or UL 723, ~~when tested using Type X gypsum board as the substrate~~ <u>with test specimen preparation and mounting in accordance with ASTM E2404</u>.

Commenter's Reason: During the initial code hearings committee ASTM E05 had not yet issued an appropriate specimen preparation and mounting method for water resistive barriers contained within exterior assemblies, although there was consensus that they should not be tested over a non-combustible substrate.

Since the code hearings for committee proposals, consensus has been reached at ASTM and a new edition of ASTM E2404 has been issued. This new edition (2015a) has an amended title and scope and addresses specimen preparation and mounting specific for this application. This standard will be updated to the newest edition (2015a or newer) by the administrative committee in the Group B cycle.

It is essential that the 2015a edition of the ASTM E2404 standard (which has been issued) be the one that applies in this section. ASTM E2404 is already referenced in the IBC.

The new title of the 2015a edition is: Standard Practice for Specimen Preparation and Mounting of Textile, Paper or Polymeric (Including Vinyl) and Wood Wall or Ceiling Coverings, Facings and Veneers, to Assess Surface Burning Characteristics. The new scope includes the following information:
The new scope states that the practice describes procedures for specimen preparation and mounting when testing textile, paper, vinyl, expanded vinyl or other polymeric wall or ceiling covering materials to assess flame spread and smoke development as surface burning characteristics using ASTM E84. It states further that the practice applies also to facings or wood veneers intended to be applied on site over a wood substrate (in 8.7) and to water-resistive barriers that are used as a component of exterior wall systems, as part of the exterior envelope (in 8.9). The scope also states that the practice does not apply to: (a) laminated products factory produced with a wood substrate (which are covered by ASTM E2579), (b) to water-resistive barriers comprised of foam plastic materials contained within the wall system or (c) to water vapor retarders used, in conjunction with thermal insulation, on the interior or exterior side of an exterior wall. Other sections of the new scope deal with administrative issues.

The new section dealing with the materials relevant to this code proposal address how to test water-resistive barriers. The section (8.9) explains that for water-resistive barriers, the test specimen preparation method to be used must be a function of the substrate over which the water-resistive barrier is intended to be applied. It goes on to state that the test specimen preparation method to be used is the relevant one among those described in sections 8.2 through 8.5, corresponding to the substrate (noncombustible material, gypsum board, wood or other combustible material) over which the water-resistive barrier is intended to be applied. With regard to the IBC and section 1403.5, the relevant section is 8.3.

Section 8.3 of ASTM E2404 (2015a) states that the test specimen is to be mounted on a 5⁄8 in. (15.9 mm) thick Type X gypsum board, complying with Specification C1396/C1396M. It states further that the gypsum board is not required to be mounted on studs.

FS147-15

FS149-15 Part I

1403.5, 1407.10.4, 1409.10.4

Proposed Change as Submitted

Proponent : John Woestman, Kellen Company, representing Extruded Polystyrene Foam Association (XPSA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

1403.5 Vertical and lateral flame propagation. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible *water-resistive barrier*_ shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. For the purposes of this section, fenestration products and flashing of fenestration products shall not be considered part of the *water-resistive barrier*. The required NFPA 285 fire performance of the exterior wall assembly shall be permitted to be established by any of the following methods or procedures:

1. NFPA 285 fire performance designs documented in an approved source.
2. NFPA 285 fire performance designs certified by an approved agency.
3. Engineering analysis of an exterior wall assembly based on a comparison of building element, component or assemblies designs that are equivalent to the fire exposure and acceptance criteria set forth in NFPA 285.

Exceptions:

1. Walls in which the *water-resistive barrier* is the only combustible component and the *exterior wall* has a wall covering of brick, concrete, stone, terra cotta, stucco or steel with minimum thicknesses in accordance with Table 1405.2.

2.Walls in which the *water-resistive barrier* is the only combustible component and the *water-resistive barrier* has a peak heat release rate of less than 150 kW/m^2, a total heat release of less than 20 MJ/m^2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E 1354 and has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E 84 or UL 723. The ASTM E 1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2.

1407.10.4 Full-scale tests. The MCM system shall be tested in accordance with, and comply with, the acceptance criteria of NFPA 285. Such testing shall be performed on the MCM system with the MCM in the maximum thickness intended for use. The required NFPA 285 fire performance of the exterior wall assembly shall be permitted to be

established by any of the following methods or procedures:

1. NFPA 285 fire performance designs documented in an approved source.
2. NFPA 285 fire performance designs certified by an approved agency.
3. Engineering analysis of an exterior wall assembly based on a comparison of building element, component or assemblies designs that are equivalent to the fire exposure and acceptance criteria set forth in NFPA 285.

1409.10.4 Full-scale tests. The HPL system shall be tested in accordance with, and comply with, the acceptance criteria of NFPA 285. Such testing shall be performed on the HPL system with the HPL in the minimum and maximum thicknesses intended for use. The required NFPA 285 fire performance of the exterior wall assembly shall be permitted to be established by any of the following methods or procedures:

1. NFPA 285 fire performance designs documented in an approved source.
2. NFPA 285 fire performance designs certified by an approved agency.
3. Engineering analysis of an exterior wall assembly based on a comparison of building element, component or assemblies designs that are equivalent to the fire exposure and acceptance criteria set forth in NFPA 285.

Reason: This code change specifies the documentation requirements for NFPA 285 fire performance designs. In a similar manner as Section 703.3, the proposed wording will allow NFPA 285 tests to be documented in an approved source, listed by an approved agency, or engineering judgments and other performance designs to be used in lieu of an actual NFPA 285 test on the specific assembly. This will recognize existing NPFA 285 test reports and third-party listings as well as permit the addition or substitution of materials within an NFPA 285 complying assemblies provided sufficient analytical data (i.e. engineering analysis) is made available to the code official. The code change reflects current practice in the market. This code change proposal delineates sources available for compliance documentation for a wide variety of NFPA 285 tested assemblies.

Cost Impact: Will not increase the cost of construction
No cost increase. This proposal identifies options to comply with existing NFPA 285 testing requirements.

FS149-15 Part I : 1403.5-WOESTMAN5561

Public Hearing Results

Part I

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following: Section 104.11 allows this already; testing should be done to support suitability of the exterior wall system; and there are unqualified labs currently providing engineering analyses to determine equivalence – this change would support that.

Individual Consideration Agenda

Public Comment 1:

Proponent : John Woestman, Kellen, representing Extruded Polystyrene Foam Association (XPSA) (jwoestman@kellencompany.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1403.5 Vertical and lateral flame propagation. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible *water-resistive barrier* shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. For the purposes of this section, fenestration products and flashing of fenestration products shall not be considered part of the *water-resistive barrier*. ~~The~~ Subject to the approval of the building code official, the required NFPA 285 fire performance of the exterior wall assembly shall be permitted to be established by any of the following methods or procedures:

1. NFPA 285 fire performance designs documented in an *approved* ~~*source*~~*source*.
2. NFPA 285 fire performance designs certified by an *approved* ~~*agency*~~*agency*.
3. ~~Engineering~~ An *approved* engineering analysis ~~of an exterior wall assembly based on a comparison of building element, component or assemblies designs that are equivalent to the fire exposure and acceptance criteria set forth in NFPA 285~~.

Exceptions:

3.1. Walls in which the *water-resistive barrier* is the only combustible component and the *exterior wall* has a wall covering of brick, concrete, stone, terra cotta, stucco or steel with minimum thicknesses in accordance with Table 1405.2.

3.2. Walls in which the *water-resistive barrier* is the only combustible component and the *water-resistive barrier* has a peak heat release rate of less than 150 kW/m^2, a total heat release of less than 20 MJ/m^2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E 1354 and has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E 84 or UL 723. The ASTM E 1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of

50 kW/m^2.

1407.10.4 Full-scale tests. The MCM system shall be tested in accordance with, and comply with, the acceptance criteria of NFPA 285. Such testing shall be performed on the MCM system with the MCM in the maximum thickness intended for use. ~~The~~ Subject to the approval of the building official, the required NFPA 285 fire performance of the exterior wall assembly shall be permitted to be established by any of the following methods or procedures:

1. NFPA 285 fire performance designs documented in an *approved source*.
2. NFPA 285 fire performance designs certified by an *approved agency*.
3. ~~Engineering~~ An *approved* engineering analysis~~ of an exterior wall assembly based on a comparison of building element, component or assemblies designs that are equivalent to the fire exposure and acceptance criteria set forth in NFPA 285~~.

1409.10.4 Full-scale tests. The HPL system shall be tested in accordance with, and comply with, the acceptance criteria of NFPA 285. Such testing shall be performed on the HPL system with the HPL in the minimum and maximum thicknesses intended for use. ~~The~~ Subject to the approval of the building official, the required NFPA 285 fire performance of the exterior wall assembly shall be permitted to be established by any of the following methods or procedures:

1. NFPA 285 fire performance designs documented in an *approved* ~~*source*~~*source*.
2. NFPA 285 fire performance designs certified by an *approved* ~~*agency*~~*agency*.
3. ~~Engineering~~ An *approved* engineering analysis~~ of an exterior wall assembly based on a comparison of building element, component or assemblies designs that are equivalent to the fire exposure and acceptance criteria set forth in NFPA 285~~.

Commenter's Reason: Addressing the committee concerns, we've revised the proposed language to make it clear the verification of meeting the NFPA 285 requirements is from an *approved* source, *approved* agency, or *approved* engineering analysis, and subject to the approval of the building official.
This code change specifies the documentation requirements for NFPA 285 fire performance designs. In a similar manner as Section 703.3, the proposed wording will allow NFPA 285 tests to be documented in an *approved source*, listed by an *approved agency*, or *approved* engineering judgments and other performance designs as acceptable to the building official to be used in lieu of an actual NFPA 285 test on the specific assembly.

FS149-15 Part I

FS149-15 Part II

2603.5.5

Proposed Change as Submitted

Proponent : John Woestman, Kellen Company, representing Extruded Polystyrene Foam Association (XPSA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

2603.5.5 Vertical and lateral fire propagation. The exterior wall assembly shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. The required NFPA 285 fire performance of the exterior wall assembly shall be permitted to be established by any of the following methods or procedures:

1. NFPA 285 fire performance designs documented in an approved source.
2. NFPA 285 fire performance designs certified by an approved agency.
3. Engineering analysis of an exterior wall assembly based on a comparison of building element, component or assemblies designs that are equivalent to the fire exposure and acceptance criteria set forth in NFPA 285.

Exceptions:

1. One-story buildings complying with Section 2603.4.1.4.
2. Wall assemblies where the foam plastic insulation is covered on each face by not less than 1-inch (25 mm) thickness of masonry or concrete and meeting one of the following:
   2.1 There is no airspace between the insulation and the concrete or masonry.
   2.2 The insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E 84 or UL 723 and the maximum airspace between the insulation and the concrete or masonry is not more than 1 inch (25 mm).

Reason: This code change specifies the documentation requirements for NFPA 285 fire performance designs. In a similar manner as Section 703.3, the proposed wording will allow NFPA 285 tests to be documented in an approved source, listed by an approved agency, or engineering judgments and other performance designs to be used in lieu of an actual NFPA 285 test on the specific assembly. This will recognize existing NPFA 285 test reports and third-party listings as well as permit the addition or substitution of materials within an NFPA 285 complying assemblies provided sufficient analytical data (i.e. engineering analysis) is made available to the code official. The code change reflects current practice in the market. This code change proposal delineates sources available for compliance documentation for a wide variety of NFPA 285 tested assemblies.

Cost Impact: Will not increase the cost of construction

No cost increase. This proposal identifies options to comply with existing NFPA 285 testing requirements.

FS149-15 Part II : 2603.5.5-WOESTMAN5562

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following: Section 104.11 allows this already; testing should be done to support suitability of the exterior wall system; and there are unqualified labs currently providing engineering analyses to determine equivalence – this change would support that.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : John Woestman, representing Extruded Polystyrene Foam Association (XPSA) (jwoestman@kellencompany.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

2603.5.5 Vertical and lateral fire propagation. The exterior wall assembly shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. ~~The~~ Subject to the approval of the building official, the required NFPA 285 fire performance of the exterior wall assembly shall be permitted to be established by any of the following methods or procedures:

1. NFPA 285 fire performance designs documented in an *approved* ~~*source*~~*source*.
2. NFPA 285 fire performance designs certified by an *approved* ~~*agency*~~*agency*.
3. ~~Engineering~~ An *approved* engineering analysis~~ of an exterior wall assembly based on a comparison of building element, component or assemblies designs that are equivalent to the fire exposure and acceptance criteria set forth in NFPA 285~~.

Exceptions:

3.1. One-story buildings complying with Section 2603.4.1.4.

3.2. Wall assemblies where the foam plastic insulation is covered on each face by not less than 1-inch (25 mm) thickness of masonry or concrete and meeting one of the following:

3.2.1. There is no airspace between the insulation and the concrete or masonry.

3.2.2. The insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E 84 or UL 723 and the maximum airspace between the insulation and the concrete or masonry is not more than 1 inch (25 mm).

Commenter's Reason: Addressing the committee concerns, we've revised the proposed language to make it clear the verification of meeting the NFPA 285 requirements is from an *approved* source, *approved* agency, or *approved* engineering analysis, and subject to the approval of the building official.
This code change specifies the documentation requirements for NFPA 285 fire performance designs. In a similar manner as Section 703.3, the proposed wording will allow NFPA 285 tests to be documented in an *approved source*, listed by an *approved agency*, or *approved* engineering judgments and other performance designs as acceptable to the building official to be used in lieu of an actual NFPA 285 test on the specific assembly.

FS149-15 Part II

FS150-15
1404.2

Proposed Change as Submitted

Proponent : Jay Crandell, ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council

2015 International Building Code

Revise as follows:

1404.2 Water-resistive barrier. *Water-resistive barrier* material assemblies shall be installed in accordance with the manufacturer's installation instructions using and *approved* installation method tested for water penetration resistance in accordance with one of the following:

1. The *water-resistive barrier* assembly shall be tested as a component of a complete exterior wall envelope system in accordance with Section 1403.2, Exception 2; or
2. The *water-resistive barrier* assembly shall be tested in accordance with Section 1403.2, Exception 2, without exterior wall finish materials using a minimum differential pressure of 2.86 pounds per square foot (psf)(0.136 kN/m^2) and a minimum test exposure duration of 15 minutes.

Exception: Not fewer than one layer of No.15 asphalt felt, complying with ASTM D 226 for Type 1 felt ~~or other *approved* materials,~~ shall be attached to the studs or sheathing, with flashing as described in Section 1405.4, in such a manner as to provide a continuous *water-resistive barrier* behind the *exterior wall* veneer.

Reason: The proposal specifies that water-resistive barriers be installed in accordance with the manufacturer's installation instructions to assist in proper use and enforcement. It also coordinates and unifies WRB assembly water penetration testing requirements. Furthermore, an exception statement continues to prescriptively recognize ASTM D226 Type 1 asphalt felt as a deemed-to-comply solution (i.e., assembly water resistance testing not required).
The concept of this proposal is to use the same test method (ASTM E 331) and adjust test conditions for two optional qualification approaches to account for the presence or absence of an exterior wall finish material over the water-resistive barrier. It is important to be able to test these two ways to appropriate qualify WRB asemblies (1) for use with a specific exterior wall envelope system (including a specific cladding material) or (2) to more generally qualify a WRB assembly for use with multiple exterior wall finish materials by testing the WRB assembly in an unprotected or exposed condition.

The water penetration resistance test criteria proposed for the second condition, where the WRB assembly is unprotected, is consistent with criteria specified in ASTM E 331 (e.g., 2.86 psf and 15 minute duration with no water penetration). This requirement is also consistent with that used in another code referenced standard for water-resistive barrier coatings that are tested in an unprotected condition (refer to Section 1408.4.1.1) for use with EIFS. Thus, the proposal is consistent with two-code referenced standards. It is also reasonably consistent with the performance of asphalt felt when tested in an unprotected condition and, therefore, complies with the equivalency intent of the code as based on testing by three different certified laboratories where performance of 5 to 15 minutes at 2.86 psf was observed for

asphalt felt using ASTM E 331.

The need for a uniform and effective water-penetration resistance requirement is documented in the literature (Hall and Hoigard, 2005; Dorin, 2006; Lstiburek, 2012). In particular, Hall and Hoigard (2005) evaluated current code requirements, acceptance criteria, and field experience. They also report comparative test data under installed water exposure conditions, demonstrating that at least some polymeric building wrap materials are capable of performing equivalenty to asphalt-saturated felt materials. The relevant conclusions from the study include:

1. "Current builing code provisions offer no rational means of assessing the equivalency of alternative WRB products to ASTM D-226 type I asphalt-saturated felt..."

2. "The [material only water resistance tests] fail to address several important moisture transport mechanisms that affect the in-service performance of WRBs."

The proposed requirements are consistent with the intent of equivalency between code-recognized materials and methods (e.g., asphalt felt) and other alternative WRB materials and assemblies. Therefore, this proposal will help to ensure acceptable and consistent perormance of various types of alternative WRB materials and assemblies in a non-exclusionary and effective manner.

Bibliography: Dorin, L. (2005). The importance of integrating flashing and the water resistive barrier in the exterior wall systems of residential buildings. *Journal of the ASTM International*, Vol. 3, No. 5, ASTM International, West Conshohocken, PA
Hall, G.D. and Hoigard, K.R., "Water-Resistive Barriers: How do they compare?", *Interface*, November 2005.

Lstiburek, J., "Leaks & Holes", *ASHRAE Journal*, December 2012.

Cost Impact: Will not increase the cost of construction
This code change proposal has no cost impact because it does not change the requirement for any code-recognized water resistive barrier, such as asphalt felt. For WRB materials and assemblies that are not code recognized, but which are tested for assembly water-penetration resistance meeting the performance intent of the code and equivalency to code-recognized materials, there also are no cost impacts because there is no change in requirements. Thus, a variety of code-compliant options are maintained and potential long-term cost impacts to construction of non-compliant materials will be reduced or avoided.

FS150-15 : 1404.2-CRANDELL4987

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following: the proposed testing does not address durability and effectiveness representing installed conditions; it appears the code official would need to approve the installation method; there should be a definition for the water-resistive barrier assembly.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jay Crandell, ARES Consulting, representing self requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1404.2 Water-resistive barrier. Not fewer than one layer of No.15 asphalt felt, complying with ASTM D 226 for Type 1 felt or other *approved* materials, shall be attached to the studs or sheathing, with flashing as described in Section 1405.4, in such a manner as to provide a continuous *water-resistive barrier* behind the *exterior wall* veneer. Other approved water-resistive barrier materials shall be installed in accordance with the manufacturer's installation instructions. The installation method shall have water penetration resistance at least equivalent to accepted practice for installation of No. 15 asphalt felt.

Commenter's Reason: This PC simplifies the original proposal to address two major concerns: (1) consistency of installed water penetration resistance performance for all "other approved materials" and (2) minimum performance at least equivalent to that of No. 15 asphalt felt (a code recognized and successful practice). The reason statement with the original proposal provided justification for this proposal in relation to the above concerns. The justification is further supplemented with a review of data from various test standards, approved agencies, and the technical literature (see ABTG Research Report No. 1504-3 "Water-Resistive Barriers: Assuring Consistent Assembly Water Penetration Resistance" available at http://www.appliedbuildingtech.com/research-reports). This PC also references manufacturer installation instructions which are important to proper installation.

The clear need for a consistently-applied water penetration test requirement for installation methods of "other approved materials" (materials other than code-recognized No.15 felt and Grade D paper) was not the basis for disapproval at the first hearing. Instead, the committee offered comments to help improve this proposal. This public comment addresses the committee's three concerns as follows:

1. "*Proposal testing does not address durability*" –The proposal only addresses the goal of having consistency with regard to ensuring installed water penetration resistance at least equivalent to code-recognized materials and methods (e.g., No. 15 asphalt felt). The PC is written to help clarify that the proposal does not change the durability requirements currently applicable to all "other approved materials" or those presently in the code such as No.15 felt and Grade D paper. It in no way alters or excludes existing durability requirements that are currently being applied in various standards and evaluation criteria for various WRB materials. Unlike water penetration assembly testing, durability testing cannot be so uniformly specified and this is recognized in the ASTM E1677 standard for air-barriers which also are used as water-resistive barriers: "*X2.6 An AB should be sufficiently durable to maintain its effectiveness for a period at least equal to the expected service life of the structure.* ***There is not one test that can provide this information****...*" (ASTM E1677-05)
2. "*It appears the code official would need to approve the installation method*" – There was a comment that the wording "approved installation method" would force building officials to review every installation method. This language has been removed and replaced with language simply stating the requirements to ensure water penetration resistance equivalency of other approved materials as installed. All "other approved materials" are currently required to be "approved" by definition. This PC will ensure that such approvals will be based on information that is consistently applied for all other approved materials in

regard to water penetration resistance at a level that is equivalent to code recognize materials such as No.15 asphalt felt. This will place no additional burden on code officials because this information would be placed in test reports or evaluation reports that are currently required to support approval of other approved materials. For some materials, this information is already included in code evaluation data. Consequently, this proposal will assist the code official in performing this duty by ensuring that all materials are evaluated on a consistent and equivalent basis with performance at least equal to that of No.15 asphalt felt. For code-recognized materials, like asphalt felt and Grade D paper, where installation requirements are specified in the code, the code official does not have to approve the material or installation method.

3. "*There should be a definition for water-resistive barrier assembly*" – The term "water-resistive barrier assembly" has been removed in the PC, relying instead on terms already existing in the code and in familiar usage.

While most other approved materials are evaluated similarly for installed water penetration resistance, some materials have no requirement for confirmation of equivalent performance of installed water penetration resistance. For example, ASTM E2556 includes coverage of various types of building wraps which are "other approved materials" and which have a variety of differences in material formulation or use of perforations to provide a combination of water resistance and vapor permeance. As shown in the literature, differences in the performance of these materials and equivalency to code recognized materials can only be discerned when testing as an installed assembly. But, unlike requirements for essentially all other WRB materials, the E2556 standard and current acceptance criteria for building wraps lack any requirement for installed performance which is a critical factor. The ASTM E2556 standard states in its scope: "1.2 This specification is limited to evaluation of materials and does not address installed performance..."

Finally, the concept of "other approved materials" is maintained (existing code language), clarified, and strengthened with provisions to assure that all other approved materials must perform equivalently in regard to installed water penetration resistance (consistent with the intent of the code)

Public Comment 2:

Proponent : Jay Crandell, ARES Consulting, representing Foam Sheathing Committee requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1404.2 Water-resistive barrier. Not fewer than one layer of No.15 asphalt felt, complying with ASTM D 226 for Type 1 felt or other *approved* materials, shall be attached to the studs or sheathing, with flashing as described in Section 1405.4, in such a manner as to provide a continuous *water-resistive barrier* behind the *exterior wall* veneer. Other approved water-resistive barrier materials shall be installed in accordance with the manufacturer's installation instructions. The installation method shall have water penetration resistance at least equivalent to accepted practice for installation of No. 15 asphalt felt. Alternatively, the water resistive barrier installation method shall be permitted to be tested for equivalent water penetration resistance in accordance with one of the following:

1. The water-resistive barrier shall be installed behind a specific exterior wall covering and tested in accordance with Section 1403.2, Exception 2; or
2. The water-resistive barrier shall be installed in an exposed condition without an exterior wall covering or other exterior wall components and tested in accordance with ASTM E331.

Commenter's Reason: This PC addresses two major concerns: (1) consistency of installed water penetration resistance performance for all "other approved materials" and (2) minimum performance at least equivalent to that of No. 15 asphalt felt (a code recognized and successful practice). The reason statement with the original proposal provided justification for this proposal in relation to the above concerns. The justification is further supplemented with a review of data from various test standards, approved agencies, and the technical literature (see ABTG Research Report No. 1504-3 "Water-Resistive Barriers: Assuring Consistent Assembly Water Penetration Resistance" available at http://www.appliedbuildingtech.com/research-reports). In addition, manufacturer installation instructions are referenced which are important to proper installation.

This PC differs in one important way from a separate PC submitted by this proponent on FS 150. It includes two alternative testing methods to ensure consistency in achieving equivalency to No.15 asphalt felt. It first references existing provisions in Section 1403.2 which apply to full wall asemblies which includes wall coverings. Second, it references the ASTM E331 standard which contains appropriate direction for the purpose of qualifying WRB in an exposed testing condition (indepently from any specific wall covering material). Having these two methods specifically referenced will provide flexibility to manufacturers and avoid the case of having to benchmark test against No.15 asphalt felt for every new or existing "other approved material" or test for every possible combination of cladding and WRB material (which is unreasonable). The ASTM E331 test criteria are also consistent with a number of WRB standards and also with existing benchmark test data of No.15 asphalt felt in an exposed condition (see linked research report above). Thus, this PC may be considered as an improvement over the separately submitted PC.

Please refer to the proponent's separate PC on FS 150 for additional rationale and response to committee comments.

FS150-15

FS153-15
1404.2

Proposed Change as Submitted

Proponent : Theresa Weston, DuPont Building Innovations, representing DuPont Building Innovatons (theresa.a.weston@usa.dupont.com)

2015 International Building Code

Revise as follows:

1404.2 Water-resistive barrier. Not fewer than one layer of ~~No.15 asphalt felt~~ water-resistive barrier, complying with ASTM ~~D 226 for Type 1 felt~~ E 2556 or other *approved* materials, shall be attached to the studs or sheathing, with flashing as described in Section 1405.4, in such a manner as to provide a continuous *water-resistive barrier* behind the *exterior wall* veneer.

Reason: The proposal updates the water-resistive barrier reference to the most recent consensus standard. ASTM E2556 includes housewrap materials, building papers and felt, instead of just felt and therefore is more representative of the state of the industry. Furthermore, the current reference standard is scoped for roof systems, while ASTM E2556 was developed and is scoped for wall systems and so, therefore, is more appropriate for this section of the code. ASTM E2556 is currently referenced in Section 2510 for Stucco water-resistive barriers so its adoption in this section would increase consistency within the code. ASTM E2556 is consistent with the current ICC-ES acceptance criteria for water-resistive barriers (AC-38) and therefore should not limit the use of current WRBs.

Cost Impact: Will not increase the cost of construction
The requirements in the referenced standard are consistent with requirements in ICC-ES Acceptance Criteria AC-38, the most broadly used water-resistive barrier qualification criteria, so will not change the water-resistive barriers requirements or costs associated with them.

FS153-15 : 1404.2-WESTON5376

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee did not see the need to add reference to ASTM E2556 as section 104.11 allows the code official to approve alternatives. With the limitations of this standard the code official should review and specially approve based on a given application.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Theresa Weston, DuPont Building Innovations,

representing DuPont Building Innovations (theresa.a.weston@usa.dupont.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

1404.2 Water-resistive barrier. Not fewer than one layer of one of the following materials:

1. No. 15 asphalt felt complying with ASTM D226 for Type 1 felt,
2. Grade D building paper or other water-resistive barrier, complying with ASTM E 2556 , or
3. other *approved*~~materials,~~ material.

Water-resistive barriers shall be attached to the studs or sheathing, with flashing as described in Section 1405.4, in such a manner as to provide a continuous *water-resistive barrier* behind the *exterior wall* veneer.

Commenter's Reason: The original proposal intended to update the water-resistive barrier reference to the most recent consensus standard. ASTM E2556 includes housewrap materials, building papers and felt, instead of just felt and therefore is more representative of the state of the industry. After discussions with other industry members, it was clear that continued direct reference to traditional materials was desirable. Therefore, this public comment maintains the traditional material references, while providing the updated consensus standard reference. Although the committee did not see the need to add the reference, E2556 is currently referenced in Section 2510 for Stucco water-resistive barriers so its adoption in this section would increase consistency within the code. Section 2510.6 references water-resistive barriers complying with E2556 and directs those water-resistive barriers to be installed as required in this section (1404.2). Consistency in the references between the two sections will provide clarity.

ASTM E2556 is consistent with the current ICC-ES acceptance criteria for water-resistive barriers (AC-38) and therefore should not limit the use of current WRBs. So the addition would not change current industry practice in the acceptance of water-resistive barriers.

FS153-15

FS154-15

202 (New), , 1402.1, 1404.3 (New), 1405.5 (New)

Proposed Change as Submitted

Proponent : Laverne Dalgleish, Building Professionals, representing Air Barrier Association of America

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

AIR BARRIER. Materials assembled and joined together to provide a barrier to air leakage through the buildling envelope. An air barrier may be a single material or a combination of materials.

SECTION 202 DEFINITIONS

CONTINUOUS AIR BARRIER. A combination of materials and assemblies that restrict or prevent the passage of air thorugh the building thermal envelope.

Revise as follows:

1402.1 Definitions. The following terms are defined in Chapter 2:

ADHERED MASONRY VENEER.
AIR BARRIER.
ANCHORED MASONRY VENEER.
BACKING.
CONTINUOUS AIR BARRIER.
EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS).
EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS) WITH DRAINAGE.
EXTERIOR WALL.
EXTERIOR WALL COVERING.
EXTERIOR WALL ENVELOPE.
FENESTRATION.
FIBER-CEMENT SIDING.
HIGH-PRESSURE DECORATIVE EXTERIOR-GRADE COMPACT LAMINATE (HPL).
HIGH-PRESSURE DECORATIVE EXTERIOR-GRADE COMPACT LAMINATE (HPL) SYSTEM.
METAL COMPOSITE MATERIAL (MCM).
METAL COMPOSITE MATERIAL (MCM) SYSTEM.
POLYPROPYLENE SIDING.
PORCELAIN TILE.
VENEER.
VINYL SIDING.
WATER-RESISTIVE BARRIER.

Add new text as follows:

1404.3 Air barriers. Air barrier materials shall comply with Section

C402.5.1.2.1 of the *International Energy Conservation Code*. Air barrier assemblies shall comply with Section C402.5.1.2.2 of the *International Energy Conservation Code*.

1405.5 Air barrier installation. A continuous air barrier shall be provided in accordance with Section C402.5.1.1 of the *International Energy Conservation Code*.

Reason: To clarify the need for air-barriers in the construction of building envelope assemblies and coordinate with energy code provisions for air-barriers.
Air barriers should not just be a requirement for energy code compliance from the standpoint of controlling overall building air leakage. Air barriers also play an important role in controlling leakage of warm, moist air into building cavities where it can increase the risk of condensation on cold surfaces within a building envelope assembly. In this requard, air barriers should be considered to be at least as important as vapor retarders as addressed in current Section 1405.3 of the IBC. Thus, it is important to include a reference to air barriers in the IBC to recognize that air barriers are not just an energy code concern and are important to durable construction in the IBC. With the above purpose in mind, this proposal simply coordinates the IBC wall construction requirements with air-barrier requirments already found in the IECC (without any technical change). The definitions are directly from the IECC.

Bibliography: IECC 2015 Published May 30, 2014 Page 325
IECC 2015 Published May 30, 2014 Page 326

Cost Impact: Will increase the cost of construction
If a state has adopted the IECC 2012 or ASHRAE 90.1 2010, then there is no increase cost of construction. If a state has not adopted IECC 2012 or ASHRAE 90.1 2010, then adding a requirment for air barrier will increase the cost of construction by aproximately $4.00 per square foot of area. This cost is offset by reducing both building maintainance and building repair by an even greater amount over the life of the building.

FS154-15 : 1402.1-DALGLEISH5452

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following: Having air barrier requirements in the IBC is inappropriate and they should remain in the IECC; Providing only pointers to the IECC is redundant as the code already sends users to the IECC for energy provisions; and reference only to commercial provisions is inappropriate as residential provisions may apply to certain structures.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jay Crandell, ARES Consulting, representing Foam Sheathing Committee requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1404.3 Air barriers Air barrier materials and assemblies shall comply with the International Energy Conservation Code.

1405.5 Air barrier installation A continuous air barrier shall be provided in accordance with the International Energy Conservation Code.

Commenter's Reason: The need for this proposal is adequately justified as a building code concern related to moisture control because the intended function of vapor retarders are ineffective without coordination with air-barriers. It is a widely recognized building science fact that the function of air-barriers is not just an energy code concern as explained more fully in the reason statement for the original proposal. The building code should embrace and address this fact by making the link to moisture control purposes of air-barriers more transparent (the energy code does not do this and the building code is presently silent on the matter).

Based on feedback at the first hearing, this public comment greatly simplifies the original proposal and addresses concerns raised by the committee as follows:

1. "*Reference only to commercial provisions is inappropriate*" – This concern has been addressed by removing reference to specific commercial provisions of the IECC. Instead, it now more generally refers to air-barrier requirements in the IECC in a manner that is inclusive of appropriate commercial or residential provisions as applicable.
2. "*Having air-barrier requirements in the IBC is inappropriate; they should remain in the IECC*." – Agreed. This proposal keeps all of the air-barrier requirements in the IECC. It is merely making a reference to the IECC to ensure appropriate association of air-barriers in their role for moisture control which is in the scope of the IBC, not the IECC.
3. "*Pointers to the IECC is redundant*" – The IBC points to the IECC only in regard to energy code compliance. The moisture control provisions in Chapter 14, however, are dependent on and affected by air-barrier compliance. There is a direct need for reference to the IECC for this specific code coordination purpose. This is not a redundant reference to the IECC. It is a reference for a specific need and purpose that is otherwise potentially overlooked in coordinating and adopting the ICC family of codes.

Public Comment 2:

Proponent : Theresa Weston, DuPont Building Innovations, representing DuPont Building Innovations (theresa.a.weston@usa.dupont.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1403.2 Weather protection. Exterior walls shall provide the building with a weather-resistant *exterior wallenvelope*. The *exterior wallenvelope* shall include flashing, as described in Section 1405.4. The *exterior wallenvelope* shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a *water-resistive barrier* behind the exterior veneer, as described in Section 1404.2, and a means for draining water that enters the assembly to the exterior. Protection against condensation in the *exterior wall* assembly shall be provided in accordance with Section 1405.3 and 1405.4.

Exceptions:

1. A weather-resistant *exterior wallenvelope* shall not be required over concrete or masonry walls designed in accordance with Chapters 19 and 21, respectively.
2. Compliance with the requirements for a means of drainage, and the requirements of Sections 1404.2 and 1405.4, shall not be required for an *exterior wallenvelope* that has been demonstrated through testing to resist wind-driven rain, including joints, penetrations and intersections with dissimilar materials, in accordance with ASTM E 331 under the following conditions:
    - 2.1. *Exterior wallenvelope* test assemblies shall include at least one opening, one control joint, one wall/eave interface and one wall sill. Tested openings and penetrations shall be representative of the intended end-use configuration.
    - 2.2. *Exterior wallenvelope* test assemblies shall be at least 4 feet by 8 feet (1219 mm by 2438 mm) in size.
    - 2.3. *Exterior wallenvelope* assemblies shall be tested at a minimum differential pressure of 6.24 pounds per square foot (psf) (0.297 kN/m^2).
    - 2.4. *Exterior wallenvelope* assemblies shall be subjected to a minimum test exposure duration of 2 hours.The *exterior wallenvelope* design shall be considered to resist wind-driven rain where the results of testing indicate that water did not penetrate control joints in the *exterior wall* envelope, joints at the perimeter of openings or intersections of terminations with dissimilar materials.
3. Exterior insulation and finish systems (EIFS) complying with Section 1408.4.1.

1405.4 Air Leakage Control Building envelope air leakage control shall be provided in accordance with the *International Energy Conservaton Code*.

Commenter's Reason: I respectfully disagree with the committee and believe that air leakage control is appropriate for inclusion in the IBC as it is critical to the moisture performance of wall systems and performance of vapor control measures required in Section 1405.3. The revised proposal of this Public Comment directly makes the connection between air barriers and moisture performance by adding a

pointer in Section 1403.2. The air leakage control provisions reference the International Energy Conservation Code, so that either commercial or residential air leakage control requirements are referenced as appropriate for the specific project.

FS154-15

FS156-15

202 (New), 1404.13 (New), Table 1405.2, 1405.15 (New), 1405.15.1 (New), Chapter 35

Proposed Change as Submitted

Proponent : Matthew Dobson, representing Vinyl Siding Institute

2015 International Building Code

Add new text as follows:

SECTION 202 DEFINITIONS

INSULATED VINYL SIDING A vinyl cladding product, with manufacturer-installed foam plastic insulating material as an integral part of the cladding product, having a thermal resistance of not less than R-2.

1404.13 Insulated Vinyl Siding. Insulated vinyl siding shall be certified and labeled as conforming to the requirements of ASTM D 7793 by an approved quality control agency.

TABLE 1405.2
MINIMUM THICKNESS OF WEATHER COVERINGS

COVERING TYPE	MINIMUM THICKNESS (inches)
Insulated Vinyl Siding	0.035 (vinyl siding layer only)

(Portions of table and footnotes not shown remain unchanged)

1405.15 Insulated vinyl siding. Insulated vinyl siding complying with ASTM D7793 shall comply with Section 1405.14.

1405.15.1 Insulated vinyl siding and accessories Insulated vinyl siding and accessories shall be installed in accordance with manufacturer's instructions

Add new standard(s) as follows: ASTM D7793-13 Standard Specification for Insulated Vinyl Siding

Reason: This proposal carries forward changes from the 2015 International Residential Code and 2015 International Energy Conservation Code. Insulated vinyl siding's ASTM standard was developed over the past few years and product is now being certified to this standard. It was not ready for adoption during the last cycle of the International Building Code.
Insulated vinyl siding, which is a form of insulated siding, is included in the 2015 International Energy Conservation Code among the materials that can be used as continuous insulation outside of the building framing to provide the required total wall R-value for buildings in the coldest climate zones.

The foam plastic used with insulated vinyl siding is required to meet the

requirements of Chapter 26 of the IBC.

Installation practices, wind, and height limitations are the same for insulated vinyl siding as vinyl siding. Therefore we have referenced the installation section for vinyl siding for this area.

Cost Impact: Will not increase the cost of construction
This change standardizes a cladding and continuous insulation category and will provide additional options.

Analysis: A review of the standard proposed for inclusion in the code, ASTM D7793, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS156-15 : 1404.13 (New)-DOBSON5330

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee's main objection to this proposal is the lack of fire data submitted to qualify these products. Further, the definition seems limiting in that it only includes foam plastic insulating material.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Matthew Dobson, Vinyl Siding Institute, representing Vinyl Siding Institute (mdobson@vinylsiding.org) requests Approve as Submitted.

Commenter's Reason: Outline of Proposal
This proposal introduces a product category with an established ASTM standard into the building code (IBC). Insulated vinyl siding is already recognized as a type of cladding in the *International Residential Code* through section **R703.13 Insulated Vinyl Siding**. It is also regulated as fully continuous insulation in the *International Energy Conservation Code*.

This change simply recognizes what the IRC, IECC, and ASTM have already recognized and brings the code up to date with the latest standard for Insulated Vinyl Siding, ASTM D7793.

This comment addresses committee questions on fire safety performance and how the code treats cladding, as well as provides information on insulated vinyl siding, foam plastic, and fire performance.

Background on Standard, the IBC and Cladding Regulation

ASTM D7793, provides comprehensive measure of insulated vinyl siding as a cladding and insulation. Specifically it requires the foam plastic insulation to have a flame spread not greater than 75 and a smoke developed index not greater than 450. This is the same as the requirement currently applied by the IBC to *all* foam plastic insulation, in section 2603.3. In other words, the insulation used in insulated

vinyl siding complies with the explicit requirements of the IBC.

Claims may be made that the vinyl siding and foam plastic insulation components of the product should be tested together, but section 2603.3 clearly calls for only the foam plastic insulation to be tested. This prevents other materials from being used to either artificially reduce or enhance the flame spread of the foam plastic. This principle is applied to all applications of foam plastics under the code, not just to that used in insulated vinyl siding.

Clearly, if there were a reason to suspect that the combination of vinyl siding and foam plastic insulation did create a new or unusual hazard, that would provide a reason to apply section 2603.3 differently. But vinyl siding with integral foam backing has been installed and in use on buildings for more than two decades without reports of unusual fire behavior. Furthermore, regular vinyl siding is routinely installed over foam plastic insulated *sheathing*, again without any record of a hazard resulting from the combination. There is no functional difference between this installation, which is clearly permitted by the code, and insulated vinyl siding.

Safety of Product through E84 Testing

In order to further allay any concerns about the effect on flame spread of the vinyl siding/foam plastic combination, the Vinyl Siding Institute sponsored a series of E84 test comparing the flame spread with and without foam plastic insulation of varying thickness, and with and without adhesive joining the foam to the vinyl. Below is a summary of the results and observation:

- The vinyl siding by itself consistently produced a very low flame spread index of 15.
- Foam-backed siding in typical commercial foam thickness of 1.125 inch increased the flame spread index only marginally, with an average of 17.
- Foam-backed siding with an atypically large foam thickness of 1.5 inch produced a moderate increase in flame spread, with an average of 31.5. This is well below the maximum of 75 permitted by the code for foam plastics.
- The presence or absence of adhesive to join the foam backing to the vinyl siding made no discernible difference in flame spread. The flame spread index of 17 resulting from foam-backed siding without adhesive was identical to the average of two tests with adhesive.
- The use of typical ½ inch XPS foam plastic insulated sheathing under the vinyl siding produced a marginal increase over the vinyl alone, with a flame spread of 19.
- In all tests of vinyl siding and vinyl siding in combination with foam plastic, the flame front advanced slowly to a maximum point during the first three to six minutes of the test, and then receded back without further progression.
- Vinyl siding, both with and without foam plastic, self-extinguished beyond the area exposed to the gas burner flame. Within a few seconds of extinguishment of the gas burner there was no further combustion of the sample.
- There is no evidence that the combination of vinyl siding and foam plastic, either as in integral backing or as sheathing, produces an increase in flame spread beyond what would be expected for the materials involved. There was no evidence of abnormal fire behavior resulting from the combination.

(Note: E84 FSI results are normally reported as rounded to the nearest multiple of 5. The raw FSI numbers are reported here in order to show the very small differences in FSI. A more complete summary showing results of individual tests is available.)

Applicability to Cladding

The 2603.3 flame spread requirement applies to all uses of foam plastic insulation, and the insulation used in insulated vinyl siding complies with that. It should be noted that the IBC, with narrow exceptions, does not require *any* flame spread index for vinyl siding and most exterior cladding, whether or not it is combustible and regardless of the material it is made of. The limitations on the use of combustible

exterior wall coverings such as vinyl siding are covered in section 1406. Depending on building construction type, limitations are placed on the height above grade and total wall area of combustible cladding, and the minimum fire separation is determined by the ignition resistance of the cladding when tested under NFPA 268. But no E84 flame spread index requirement is applied to combustible cladding, regardless of the building type or application.

The only known exception to this is when vinyl siding or other combustible claddings are used in an open apartment building breezeway or exterior stairwell landing, which are deemed by ICC Interpretation No. 35-04 to be treated as interior spaces. In these cases combustible exterior cladding would need to comply with interior finish requirements, including the flame spread requirements of Table 803.11. Vinyl siding, and insulated vinyl siding as assembled, would be tested to E84 and need to comply with the appropriate flame spread index in order to be used in this application.

Vinyl Siding's Use with Foam Plastic Sheathing and Insulation

Vinyl siding and foam sheathing have been used safely used together for years and the chart below provides UL rated assemblies with the building components. The point of this chart is to show when tested together and the two products together can pass an E119 rated assembly test for compliance with Table 601 of the IBC. These tests simply demonstrate that the use of the products together can be done safely and have been for a long time.

UL Listing #	**UL Rated Assemblies with Vinyl Siding and Foam Plastic Insulation Description**	**UL 264/E119/ULC-S101 Rating**
U057	Insulated (EPS (5 1/2" thick) Steel Framing Units), 5/8 layers of gypsum (2) inside, vinyl siding on outside with or without sheathing (vinyl siding must have flame spread of 20 or less)	Bearing Wall 1 hours, gypsum side only
U354	2X4 wood studs, 5/8 " thick gypsum board, max 1 1/2" foam plastic insulation with vinyl siding allowed	1 hour rating
U364	2X4 wood studs, 5/8 gypsum, wood sheathing, vinyl siding with flame spread of 20 or less, max 2" polystyrene, vinyl siding with a flame spread of 20 or less	Bearing 1 hour
U057	Insulated (EPS (5 1/2" thick) Steel Framing Units), 5/8 layers of gypsum (2) inside, vinyl siding on outside with or without sheathing (vinyl siding must have flame spread of 20 or less)	Bearing 1 hour
U354	2X4 wood studs, 5/8" gypsum, Max 1 1/2 inch foam sheathing, vinyl siding no flame spread requirements	Bearing wall rating - 1 hour
U364	2X4, 5/8" gypsum, max 2" polystyrene, vinyl siding with max flame spread of 20	Bearing wall rating - 1 hour

U397	2x4, 5/8" gypsum, max 2" polystyrene, vinyl siding with max flame spread of 20, spray applied foam plastic insulation, vinyl siding with 20 or less flame spread	Bearing - 1 hour

Table 601 requires rated assemblies on walls for certain Types of construction, but not for Type VB construction. So the code requires additional testing should it be used with certain types of buildings of certain types of risk categories. This additional requirement is already in place and would be required with certain types of building under the IBC.

When this is the case the manufacturer would be responsible for providing indicating compliance with TABLE 601 FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS) and Table 602 FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE.

The code determines when this is necessary based on the risks of the type of building and density.

California Required Test for use Wildfire Prone Areas

Where this product category has demonstrated performance ability based on code requirements and market demand is in California. California Building Code Chapter 12-7a Material and Construction Methods for Exterior Wildfire Exposure requires testing to SFM Standard 12-7a-1. Attached are two example of insulated vinyl siding that have been approved for use by passing this required test in California for use in "Very High Fire Hazard Zones" This is the best current example of how insulated vinyl siding can be safely used in an abnormally high fire risk area that is directly relevant to cladding fire performance.

(As a reminder, in general, the code does not regulate cladding and fire performance because of the low risk factor in typical uses.)

Insulated Siding vs. Insulated Vinyl Siding

To address one other comment made by the committee, this change simply introduces an ASTM standard and product category. The standard allows all major types of foam plastic insulation as a part of vinyl siding. The definition in the International Energy Conservation Code provides a broad definition so that any materials (cladding and/or insulation) can be used, as long as they are tested to exhibit an R-2 or more based on ASTM C1363. We approached this to be as inclusive as possible but please also recognize the development of ASTM D7793 and all the testing that went with it took considerable time. Now that the product category is being used more and more, we think it is appropriate to have it recognized in the code to ensure building officials are clear on how it should be regulated.

Conclusion

The IBC regulates cladding effectively and places additional requirements on cladding when used in higher risk buildings and in higher density settings. Insulated vinyl siding can only be used in these applications if it demonstrates compliance with the code. We believe the substantiated material provided exhibits this clearly and don't think additional requirements are necessary, unless the code requires it. Currently, claddings are regulated well and there has been no evidence, nor proposed changes, that indicate there is a problem with current regulation on cladding in general. If insulated vinyl siding is used where the code places additional fire performance requirements on it, then it will be the responsibility of the manufacturer

to provide those test results to the code official and architect. The evidence provided today indicates achieving necessary results is possible when required.

FS156-15

FS159-15
1405.3

Proposed Change as Submitted

Proponent : Jay Crandell, representing Foam Sheathing Committee of the American Chemistry Council

2015 International Building Code

Revise as follows:

1405.3 Vapor retarders. Vapor retarders as described in Section 1405.3.3 shall be provided in accordance with Sections 1405.3.1 and 1405.3.2~~, or an~~ . An approved design using accepted engineering practice for hygrothermal analysis shall be provided for any of the following conditions:

1. Buildings with high indoor moisture generation.
2. Exterior building envelope assemblies that are enclosed when the framing members or insulation materials exceed 19 percent moisture content.
3. Alternative means and methods to Sections 1405.3.1 and 1405.3.2.

Reason: This proposal establishes some basic (but important) conditions of use associated with the intended performance of the moisture vapor control provisions in the code. These concerns are consistently repeated in various studies, ASTM and ASHRAE guides, expert recommendations, and some state and local codes. Experience has shown that when one or more of these factors is "out of control", they are commonly associated with observed moisture problems in buildings or assemblies. Without these use conditions declared, the provisions of the code may be applied to conditions that they were not intended for and there is no means for enforcement to assist in avoiding such cases. Without these limitations specified (or as an alternative meeting the intent of this proposal), the moisture vapor control requirements should be revised to more specifically address variations in vapor retarder requirements with variations in use conditions and climate to avoid inadvertent misapplication.

Cost Impact: Will not increase the cost of construction
These requirements are already required by the intent of the code and are often done as a matter of good construction practice to control risk and reduce construction cost and business cost in the long run. These factors help control intial wall moisture content which also can reduce short term serviceability or "call-back" costs, such as nail pops or bowing walls.

FS159-15 : 1405.3-CRANDELL5001

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this proposal based on the following: verifying the moisture content of the building envelope framing is difficult and too time consuming for the local jurisdiction; this will also put a burden on contractors to allow the time for this to be verified; should be specific to wood framing; and the location in Chapter 14 is questionable – not sure this is a fire safety

issue.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : John Woestman, representing the Extruded Polystyrene Foam Association (jwoestman@kellencompany.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1405.3 Vapor retarders. Vapor retarders as described in Section ~~1405.3.3~~ 1405.3.4 shall be provided in accordance with Sections 1405.3.1 ~~and 1405.3.2~~ through 1405.3.3, or an approved design using accepted engineering practice for hygrothermal analysis.

1405.3.1 Installation. Vapor retarders shall be installed in accordance with the manufacturer's installation instructions or an approved design. Where vapor retarders are installed on fully enclosed and unvented cavities of building assemblies, damp- or wet-applied cavity insulation materials, where used, shall be verified to have a moisture content of 25 percent or less prior to enclosure of the cavity and vapor retarder installation.

Commenter's Reason: The need to control material moisture content at the time of enclosure is a well-justified building science fact. It should be noted that the committee's reason for disapproval, did not disagree with the need to control initial moisture content of building materials. However, the committee did provide comments that have been accounted for in this public comment. In addition, comments from various interested parties have been sought and taken into consideration. For additional information and justification, refer to a separate PCs by this proponent on FS159.

Research and common experience has shown that installing an interior vapor retarder and hanging drywall too early before damp- or wet-applied cavity insulation has had time to dry can lead to trapped moisture and extended drying times for all types of wall assemblies. That moisture may lead a number of significant issues. For example, wood framing materials will expand as they absorb moisture from the wet spray insulation. If a wet wall is not afforded sufficient time to dry out before enclosure, the subsequent delayed drying over time may result in mold growth, buckled wall sheathing, damaged material due to high moisture levels, corrosion, nail and screw pops and gaps in the wall assembly that could compromise the integrity of the building envelope.

CIMA Technical Bulletin #3: Standard Practice for the Installation of Sprayed Cellulosic Wall Cavity Insulation (SCWCI), Section 8.4 states: "Installation of the interior finish should not be permitted until the insulation has dried. This should be monitored using the Moisture Meter described in Section 6.6. The SCWCI may be enclosed when it is sufficiently dry, having a measured moisture content of 25% or less. Normal drying will occur within 24 to 48 hours depending upon climatic conditions, depth of fill, and initial moisture content. The manufacturer's recommended drying times shall be followed."

This PC also references the vapor retarder manufacturer's installation instructions which are becoming increasingly important as various types of vapor retarder materials and methods have come into practice.

Public Comment 2:

Proponent : Jay Crandell, ARES Consulting, representing self requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1405.3 Vapor retarders. Vapor retarders as described in Section ~~1405.3.3~~ 1405.3.4 shall be provided in accordance with Sections 1405.3.1 ~~and 1405.3.2~~ through 1405.3.3, or an approved design using accepted engineering practice for hygrothermal analysis.

1405.3.1 Installation. Vapor retarders shall be installed in accordance with the manufacturer's installation instructions or an approved design. Where vapor retarders are installed on fully enclosed and unvented cavities of building assemblies, the following shall apply:

1. Damp- or wet-applied cavity insulation materials, where used, shall be verified to have a moisture content of 25 percent or less prior to enclosure of the cavity and vapor retarder installation.
2. Wood framing materials, where used, shall be verified to have a moisture content of 19 percent or less prior to enclosure of hte cavity and vapor retarder installation.

   Exceptions:

   1. Where confirmed by accepted engineering practice for hygrothermal analysis, the above moisture content limitations shall not apply.
   2. Where wood framing materials having a moisture content greater than 19 percent have been used successfully based on local practice and experience, the requirement to verify moisture content shall not apply.

Commenter's Reason: The need to control material moisture content at the time of enclosure is a well-justified building science fact. It should be noted that the committee's reason for disapproval, did not disagree with the need to control initial moisture content of building materials. However, the committee did provide comments that have been accounted for in this public comment. In addition, comments from various interested parties have been sought and taken into consideration.

First, the following responses are offered to address the committee's reasons for disapproval at the first hearing:

1. "*Verifying moisture content is difficult and time consuming for the local jurisdiction*" – the requirement to verify moisture content levels for treated

wood materials is already in the code for applications where drying in service cannot readily occur. This proposal creates no new burden in that regard. Yet, it does make the application to moisture control provisions of Chapter 14 more transparent. Moisture readings are already commonly made on the jobsite by trades and builders for these other reasons (e.g., confirmation of lumber specification, proper installation of flooring, etc.). All that is required is a moisture meter or a certification by the contractor or trade that moisture was checked. Exceptions are also added to the PC to address alternative solutions and local experience.

2. "*Will put a burden on contractors*" – the code already requires moisture content to be checked (e.g., wood at 19% or less) for structural reasons. By common use of manufacturer installation instructions, the code also implies that moisture levels in materials such as damp-applied cavity insulation are also checked before enclosure. This PC adds no new burden, but does make the requirement more transparent. For contractors currently following the code or good construction practice, these concerns are already being routinely addressed and verified and, in many cases, create no burden with appropriate construction sequencing and control.
3. "*Should be specific to wood framing*" – The PC is revised to make it clear that the 19% MC provisions applies only to wood framing as also required in other parts of the code for other reasons. An exception for wood framing above 19% moisture content (e.g., green lumber as commonly used in the western states) is also provided.
4. "*Location in Chapter 14 is questionable – not sure this is a fire safety issue*" – Chapter 14 addresses more than just fire safety. It addresses moisture control, vapor retarders, cladding, etc.

High moisture levels at the time walls are enclosed is known to cause moisture problems such as mold, serviceability defects, and even damage to materials. This public comment focuses only on this issue and does not attempt to address high indoor relative humidity conditions that also lead to moisture problems, even when code prescribed vapor retarder provision are followed. This proposal will give code officials the option and ability to question and better judge situations that may lead to problems. This PC also provides clear guidance to builders and trades that is no different than existing industry and code recommendations evidenced as follows.

This PC is consistent with similar concerns addressed elsewhere in the code in conditions where drying in service cannot readily occur. For example, refer to IBC Section 2303.1.9.2 for preservative treated wood:

"2303.1.9.2 Moisture content. Where *preservative treated wood* is used in enclosed locations where drying in service cannot readily occur, such wood shall be at a moisture content of 19 percent or less before being covered with insulation, interior wall finish, floor covering or other materials."

The limitation of framing moisture content is cited in other building publications.

1. The ICC-700, what is the National Green Building Standard for residential homes gives credit when cavity insulation or framing material are dry when enclosed. The moisture content of lumber is sampled to ensure it does not exceed 19 percent prior to the surface and/or cavity enclosure.
2. There are also requirements in the California code to limit framing moisture content at the time of enclosure. Other states also address this concern.

This is further supported by wood industry publications:

1. The Forest Products Laboratory Wood Handbook states that checking moisture content of door and window headers and floor and ceiling joists at the time of enclosure with an electric moisture meter is good practice. When these members approach ambient moisture content, interior finish and trim can normally be installed.

1. The American Wood Council Design of Wood Frame Structures for Permeance states that care should be taken to dry framing cavities to a moisture content less than 20% prior to enclosure.

Keeping the cavity dry at the time of enclosure has benefits in the reducing mold potential, as well as other serviceability issues such as nail pops, squeaky floors, air leakage and other problems related to shrinking materials.

Research and common experience has shown that installing an interior vapor retarder and hanging drywall too early before damp- or wet-applied cavity insulation has had time to dry can lead to trapped moisture and extended drying times for all types of wall assemblies. That moisture may lead a number of significant issues. For example, wood framing materials will expand as they absorb moisture from the wet spray insulation. If a wet wall is not afforded sufficient time to dry out before enclosure, the subsequent delayed drying over time may result in mold growth, buckled wall sheathing, damaged material due to high moisture levels, corrosion, nail and screw pops and gaps in the wall assembly that could compromise the integrity of the building envelope.

CIMA Technical Bulletin #3: Standard Practice for the Installation of Sprayed Cellulosic Wall Cavity Insulation (SCWCI), Section 8.4 states: "Installation of the interior finish should not be permitted until the insulation has dried. This should be monitored using the Moisture Meter described in Section 6.6. The SCWCI may be enclosed when it is sufficiently dry, having a measured moisture content of 25% or less. Normal drying will occur within 24 to 48 hours depending upon climatic conditions, depth of fill, and initial moisture content. The manufacturer's recommended drying times shall be followed."

In addition, ASTM E 1677 also recommends that "When vapor retarders are used on both sides of the opaque wall, precautions should be used to ensure that building materials within the wall cavity have a moisture content below 19%". This statement is based on Lsitburek and Carmody, "Moisture Control Handbook" published by Oak Ridge National Laboratory. Because most walls will have at least interior paint finish (generally a Class III vapor retarder) and exteriors are often less than 10 perm (particularly when the net permeance of multiple exterior layers is considered) and considered to be vapor retarders, it is prudent to control moisture levels of the enclosed materials. Even if a wall assembly has greater than 10 perm on one side (vapor retarder only on one side of the wall), moisture can be driven toward the vapor retarder depending on the time of the year of enclosure, thus delaying drying and causing the moisture to accumulate in materials toward the inside or outside of the construction. Simply put, there are few cases or conditions where high initial moisture levels could be tolerated without consequences.

Public Comment 3:

Proponent : Jay Crandell, ARES Consulting, representing Foam Sheathing Committee requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1403.2 **Moisture management.** *Exterior walls* shall be designed and constructed in accordance with this section or an approved design to prevent damaging effects of moisture exposure, retention, and accumulation within *exterior walls*.

~~**1403.2**~~ **1403.2.1** **Weather protection.** Exterior walls shall provide the building with a weather-resistant *exterior wallenvelope*. The *exterior wallenvelope* shall include flashing, as described in Section 1405.4. The *exterior wallenvelope* shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a *water-resistive barrier* behind the exterior veneer, as described in Section 1404.2, and a means for draining water that enters the assembly to the exterior. ~~Protection against condensation in the *exterior wall* assembly shall be provided in accordance with Section 1405.3.~~

Exceptions:

1. A weather-resistant *exterior wallenvelope* shall not be required over concrete or masonry walls designed in accordance with Chapters 19 and 21, respectively.
2. Compliance with the requirements for a means of drainage, and the requirements of Sections 1404.2 and 1405.4, shall not be required for an *exterior wallenvelope* that has been demonstrated through testing to resist wind-driven rain, including joints, penetrations and intersections with dissimilar materials, in accordance with ASTM E 331 under the following conditions:
    - 2.1. *Exterior wallenvelope* test assemblies shall include at least one opening, one control joint, one wall/eave interface and one wall sill. Tested openings and penetrations shall be representative of the intended end-use configuration.
    - 2.2. *Exterior wallenvelope* test assemblies shall be at least 4 feet by 8 feet (1219 mm by 2438 mm) in size.
    - 2.3. *Exterior wallenvelope* assemblies shall be tested at a minimum differential pressure of 6.24 pounds per square foot (psf) (0.297 kN/m^2).
    - 2.4. *Exterior wallenvelope* assemblies shall be subjected to a minimum test exposure duration of 2 hours.The *exterior wallenvelope* design shall be considered to resist wind-driven rain where the results of testing indicate that water did not penetrate control joints in the *exterior wall* envelope, joints at the perimeter of openings or intersections of terminations with dissimilar materials.
3. Exterior insulation and finish systems (EIFS) complying with Section 1408.4.1.

1403.2.2 **Material moisture content.** The moisture content of

materials enclosed in a location where drying in service cannot readily occur shall be in accordance with the following:

1. Wood framing materials shall be at a moisture content of 19 percent or less prior to enclosure.
2. Wet- or damp-applied cavity insulation shall be at a moisture content of 25 percent or less prior to enclosure.

Exceptions:

1. Where confirmed by accepted engineering practice for hygrothermal analysis, the above moisture content limitations shall not apply.
2. Where wood framing materials having a moisture content greater than 19 percent have been used successfully based on local practice and experience, the requirement to verify moisture content shall not apply.

1403.2.3 Air barrier. A continuous air barrier shall be provided in accordance with the *International Energy Conservation Code* to protect against condensation and moisture accumulation in the *exterior wall* assembly.

1403.2.4 Vapor retarders. Vapor retarders shall be provided in accordance with Section 1405.3 to protect against condensation and moisture accumulation in the *exterior wall* assembly.

Commenter's Reason: In response to concerns about the location of moisture control provisions in the original proposal and confusion of the committee regarding the moisture control content of Chapter 14, this PC places all of the moisture control provisions in an appropriate location of Chapter 14 that deals with moisture performance of exterior wall assemblies. It takes a comprehensive approach by addressing all of the major sources or causes of moisture problems in exterior wall assemblies: Rain water, initial construction moisture, and moisture vapor as a result of moist-air leakage and diffusion. These all relate to the goal of the original proposal to ensure appropriate use and coordination of limitations and requirements associated with the moisture control provisions in the IBC, particularly the vapor retarder provisions.

The proposal is organized as follows to better convey the moisture control objective of the original proposal and as intended by the code for exterior walls:

1403.2.1 – this existing section (1403.2) deals primarily with rain water resistance of exterior wall assemblies. It is editorially modified only where needed to coordinate with the reformat (no technical changes)

1403.2.2 – addresses initial moisture content of enclosed construction materials to help prevent this well-known and common cause of moisture and serviceability problems in new construction. Refer to separate public comment focusing only on this particular topic for the rationale.

1403.2.3 – addresses air-barrier requirements by reference to the IECC provisions to help prevent moist air movement into and through wall assemblies that can easily negate the purpose of the vapor retarder provisions in the IBC and cause significant moisture accumulation due to moisture-laden air leaks (see separate public comment on FS 154 for this particular topic).

1403.2.4 – provides a pointer to existing vapor retarder provisions in the code to control condensation potential.

In summary, this PC more appropriately organizes the code and addresses all of the moisture "heavy hitters": rain (cladding/WRB/flashing), construction moisture (initial material moisture content), moisture from air infiltration (air-barriers), and moisture from diffusion (vapor retarders).

FS159-15

FS165-15
1405.4, Chapter 35

Proposed Change as Submitted

Proponent : Theresa Weston, DuPont Building Innovations, representing DuPont Building Innovations (theresa.a.weston@usa.dupont.com)

2015 International Building Code

Revise as follows:

1405.4 Flashing. Flashing shall be installed in such a manner so as to prevent moisture from entering the wall or to redirect that moisture to the exterior. Flashing shall be installed at the perimeters of exterior door and window assemblies, penetrations and terminations of *exterior wall* assemblies, *exterior wall* intersections with roofs, chimneys, porches, decks, balconies and similar projections and at built-in gutters and similar locations where moisture could enter the wall. Flashing with projecting flanges shall be installed on both sides and the ends of copings, under sills and continuously above projecting *trim*. When fluid applied membranes are used as flashing, those fluid applied membrane flashings shall comply with AAMA 714.

Add new standard(s) as follows:
AAMA 714-15 Voluntary Specification for Liquid Applied Flashing Used to Create a Water-Resistive Seal around Exterior Wall Openings in Buildings

Reason: Fluid applied membranes are gaining in use in the market, but no material property or performance requirements for these materials are currently included in the code. Industry has developed standard AAMA 714 to insure that this type of material meets minimum performance specificatons. This proposal incorporates AAMA 714 by reference into the code. The properties and quality of flashing materials are crucial to the successful implementation of the water management in building envelopes.

Cost Impact: Will not increase the cost of construction
This proposal does not mandate the use of any material, and therefore does not increase code requirements or have associated costs.

Analysis: A review of the standard proposed for inclusion in the code, AAMA 714, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS165-15 : 1405.4-WESTON5633

Public Hearing Results

Committee Action: Approved as Modified

Modification:

1405.4 Flashing. Flashing shall be installed in such a manner so as to prevent moisture from entering the wall or to redirect that moisture to the exterior. Flashing shall be installed at the perimeters of exterior door and window assemblies, penetrations and terminations of exterior wall assemblies, exterior wall intersections with roofs, chimneys, porches, decks, balconies and similar projections and at built-in gutters and similar locations where moisture could enter the wall. Flashing with projecting flanges shall be installed on both sides and the ends of copings, under sills and continuously above projecting trim. When fluid applied membranes are used as flashing for exterior wall openings, those fluid applied membrane flashings shall comply with AAMA 714.

Committee Reason: Despite the lack of data to show that currently manufactured liquid applied flashing meet this new standard, the committee agreed that AAMA 714 was a proper standard to reference in the code as a specification for liquid applied flashing. The modification properly limits the application to liquid applied flashings that are used as flashings of fenestration in wall assemblies.

Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : David Johnston, EIFS Industry Members Association, representing EIFS Industry Members Association requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

1405.4 Flashing. Flashing shall be installed in such a manner so as to prevent moisture from entering the wall or to redirect that moisture to the exterior. Flashing shall be installed at the perimeters of exterior door and window assemblies, penetrations and terminations of *exterior wall* assemblies, *exterior wall* intersections with roofs, chimneys, porches, decks, balconies and similar projections and at built-in gutters and similar locations where moisture could enter the wall. Flashing with projecting flanges shall be installed on both sides and the ends of copings, under sills and continuously above projecting *trim*. When fluid applied membranes are used as flashing for exterior wall service openings, those fluid applied membrane flashings shall comply with ~~AAMA 714~~ and be installed in accordance with manufacturer's instructions.

Commenter's Reason: The committee acknowledged that fluid applied flashings are appropriate in certain circumstances. This modification is intended to clarify those circumstances in which they are appropriate. Since AAMA 714, which is a voluntary standard, has criteria that are not pertinent nor appropriate for the Exterior Insulation and Finish Systems industry, the modification also clarifies that conditions

under which fluid applied flashing is to be applied.

FS165-15

FS170-15
2603.3

Proposed Change as Submitted

Proponent : Samir Mokashi (samir.mokashi@codeul.com); Avery Lindeman, Green Science Policy Institute, representing Green Science Policy Institute (avery@greensciencepolicy.org); Veena Singla, Natural Resources Defense Council, representing Natural Resources Defense Council (vsingla@nrdc.org); Bruce Hammond, Hammond & Company Inc., representing Hammond & Company, Inc. (bruce@hammondandcompany.com); Tom Lent, Healthy Building Network, representing Healthy Building Network (tlent@healthybuilding.net); Nancy Hulsey, HKS, Inc. , representing HKS, Inc. (nhulsey@hksinc.com); Vytenis Babrauskas, Fire Science & Technology Inc., representing Fire Science & Technology Inc.; Robin Guenther, representing Perkins+Will (robin.guenther@perkinswill.com); David Eisenberg, Development Center for Appropriate Technology, representing Development Center for Appropriate Technology (strawnet@gmail.com); Marjorie Smith, Siegel & Strain Architects, representing Siegel & Strain Architects (Msmith@siegelstrain.com); Stacia Miller, International Living Future Institute, representing International Living Future Institute (stacia.miller@living-future.org); Clark Brockman, SERA Architects, Inc., representing SERA Architects, Inc. (clarkb@serapdx.com); Larry Strain, representing Siegel & Strain Architects (lstrain@siegelstrain.com); Russ Pitkin, SERA Architects, Inc., representing SERA Architects, Inc; Tony Stefani, representing San Francisco Firefighters Cancer Prevention Foundation; Dennis Murphy, USGBC California, representing USGBC California (dennis@usgbc-california.org); Martin Hammer, representing Martin Hammer, Architect (mfhammer@pacbell.net)

2015 International Building Code

Revise as follows:

2603.3 Surface-burning characteristics. Unless otherwise indicated in this section, foam plastic insulation and foam plastic cores of manufactured assemblies shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450 where tested in the maximum thickness intended for use in accordance with ASTM E 84 or UL 723. Loose fill-type foam plastic insulation shall be tested as board stock for the flame spread and smoke-developed indexes.

Exceptions:

1. Smoke-developed index for interior *trim* as provided for in Section 2604.2.
2. In cold storage buildings, ice plants, food plants, food

processing rooms and similar areas, foam plastic insulation where tested in a thickness of 4 inches (102 mm) shall be permitted in a thickness up to 10 inches (254 mm) where the building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1. The approved *automatic sprinkler system* shall be provided in both the room and that part of the building in which the room is located.

3. Foam plastic insulation that is a part of a Class A, B or C roof-covering assembly provided the assembly with the foam plastic insulation satisfactorily passes NFPA 276 or UL 1256. The smoke-developed index shall not be limited for roof applications.
4. Foam plastic insulation greater than 4 inches (102 mm) in thickness shall have a maximum flame spread index of 75 and a smoke-developed index of 450 where tested at a minimum thickness of 4 inches (102 mm), provided the end use is approved in accordance with Section 2603.9 using the thickness and density intended for use.
5. Flame spread and smoke-developed indexes for foam plastic interior signs in *covered and open mall buildings* provided the signs comply with Section 402.6.4.
6. <u>Foam plastic insulation located between a concrete slab on grade and its subgrade. Such insulation shall also be exempt from the limiting oxygen index (LOI) requirements of ASTM C578.</u>

Reason: This proposal exempts foam plastic insulation used between a concrete slab on grade and its subgrade from the flame spread index (FSI) and smoke-developed index (SDI) requirements of Section 2603.3 and from the limiting oxygen index (LOI) criteria of ASTM C578. This will maintain building fire safety while reducing the health and environmental impacts of toxic or potentially toxic flame retardant chemicals, and it will increase consumer choice.
Ignition and propagation of fire requires three elements: fuel, an ignition source, and oxygen. The proposed exemption from FSI, SDI, and LOI requirements applies only to foam plastic insulation protected between a concrete slab on grade and its subgrade, where there is no significant exposure to ignition sources or oxygen. Since the foam plastic insulation will not burn under these conditions, the provisions of Section 2603.3, which limit the surface burning characteristics (FSI and SDI) of foam plastic insulation, are not relevant and provide no fire safety benefit. Similarly, there is no fire safety benefit from meeting the limiting oxygen index (LOI) criteria in ASTM C578. FSI, SDI, and LOI requirements are unnecessary for below-grade uses of foam plastic insulation, where the elements required for a fire do not exist. However, the flame retardants used in foam plastic insulation to meet these requirements pose a significant hazard to human health and ecosystems.

The proposed change does not require additional protection at slab joints or penetrations beyond those required by other applicable code provisions. At these locations it is highly unlikely that foam plastic insulation will be exposed to an ignition source, and if a portion of the insulation were somehow exposed, there would not be sufficient oxygen to propagate fire. Other slab-on-grade insulation that is not substantially covered by the slab, such as insulation between a slab edge and a foundation wall, is not covered by the proposed exception, and must comply with Section 2603.3 as well as Section 2603.4 (thermal barriers).

Satisfying the FSI, SDI, and LOI criteria typically requires the addition of flame retardants to foam plastic insulation. During manufacture and installation, workers are likely to be exposed to these flame retardants, which have been associated with neurological and reproductive impairments, hormonal and immune problems, and cancer. These flame retardants are released into the environment during

manufacture, demolition, and disposal, and they will eventually migrate out of landfills and other repositories. When thermally processed or burned (for instance, in an incinerator or a landfill), insulation containing halogenated flame retardants can generate highly persistent and toxic halogenated dioxins and furans and other toxic combustion byproducts. Exposure to these dioxins and furans has been associated with cancer and other human health and ecological harm.

HBCD (hexabromocyclododecane) is the flame retardant used most commonly in polystyrene insulation, a typical variety of foam plastic insulation used below-grade. In 2013 under the Stockholm Convention, over 150 countries agreed to eliminate HBCD from the global marketplace due to its persistence and toxicity. The chemical alternatives to HBCD are also highly persistent halogenated flame retardants and are expected to have some comparable adverse human health and ecological impacts. Reducing the unnecessary use of harmful flame retardants will reduce exposure and harm to construction workers, emergency responders, the general public, and ecosystems.

The proposed change does not prohibit the use of flame retardants in foam plastic insulation. Instead, it describes conditions under which foam plastic insulation without added flame retardants can be used safely in buildings.

It is envisioned that insulation without flame retardants for use as described in this proposed exception would require labeling that complies with Section 2603.2. This labeling would be the responsibility of the insulation manufacturer, in the same way that it is currently the manufacturer's responsibility to properly label foam plastic insulation for the end uses described in Exceptions 1 through 5 of Section 2603.3.

This code change will maintain fire safety, reduce the adverse health and environmental impacts of toxic flame retardants used in foam plastic insulation, and expand consumer choice.

Cost Impact: Will not increase the cost of construction
The proposed code change will not require any action that increases construction costs since it does not mandate any change from current practice. Utilizing the proposed code change would not require any alteration to design or construction practices. The proposed change would enable voluntary manufacture and use of alternative foam plastic insulation products that do not contain flame retardant chemicals. The cost of using these alternative insulation products may be higher, lower, or the same as the cost of using currently available insulation depending on formulation costs, production volumes, consumer demand, and level of competition.

FS170-15 : 2603.3-LINDEMAN3804

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this change based on the following: Hazards can increase based on misuse of products on the jobsite and during storage and handling of the material to get it manufactured, stored and delivered to the jobsite; no fire test data has been submitted on the product used in this application – fire can get below ground and protection by the slab may not always be enough; the proponents raised a perceived toxicity problem with fire treated foam plastic but provided no data showing the health risk affects of fire treated products.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Avery Lindeman, Green Science Policy Institute, representing Green Science Policy Institute (avery@greensciencepolicy.org); Veena Singla, representing Natural Resources Defense Council; Bruce Hammond, Hammond& Company Inc., representing Hammond & Company Inc.; Tom Lent, Healthy Building Network, representing Healthy Building Network (tlent@healthybuilding.net); Vytenis Babrauskas, Fire Science and Technology Inc., representing Fire Science and Technology Inc.; Marjorie Smith, representing Siegel & Strain Architects (Msmith@siegelstrain.com); Dennis Murphy, representing USGBC California (dennis@usgbc-california.org); Stacia Miller, International Living Future Institute, representing International Living Future Institute (stacia.miller@living-future.org); David Eisenberg, Development Center for Appropriate Technology, representing Development Center for Appropriate Technology (strawnet@gmail.com); Russ Pitkin, representing SERA Architects, Inc. (russp@serapdx.com); Kathy Gerwig, Kaiser Permanente, representing Kaiser Permanente; Martin Hammer, representing Martin Hammer, Architect (mfhammer@pacbell.net); Nancy Hulsey, representing HKS, Inc. (nhulsey@hksinc.com); Larry Strain, representing Siegel & Strain Architects (lstrain@siegelstrain.com); Samir Mokashi, Code Unlimited, representing Green Science Policy Institute (samir.mokashi@codeul.com); Tony Stefani, representing San Francisco Firefighters Cancer Prevention Foundation (stefanit@sbcglobal.net); Amanda Kaminsky, representing The Durst Organization (akaminsky@durst.org); Suzanne Drake, representing Perkins+Will (suzanne.drake@perkinswill.com); Ernest Pacheco, representing Communications Workers of America - District 9 (erniepacheco@cwa9412.org); Karen Burbano, representing REWS [e] team, Design & Construction Integrator (kburbano@google.com); Donald Lucas (d_lucas@lbl.gov); Charlotte Brody, representing BlueGreen Alliance (cbrody@bluegreenalliance.org); Jen Jackson, representing San Francisco Dept of the Environment and San Francisco Fire Dept (cynthia.jackson@sfgov.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

2603.3 Surface-burning characteristics. ~~Unless~~ Except as provided for in Section 2603.3.1 or otherwise indicated in this section, foam plastic insulation and foam plastic cores of manufactured assemblies shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450 where tested in the maximum thickness intended for use in accordance with ASTM E 84 or UL 723. Loose fill-type foam plastic insulation shall be tested as board stock for the flame spread and smoke-developed indexes.

Exceptions:

1. Smoke-developed index for interior *trim* as provided for in

Section 2604.2.

2. In cold storage buildings, ice plants, food plants, food processing rooms and similar areas, foam plastic insulation where tested in a thickness of 4 inches (102 mm) shall be permitted in a thickness up to 10 inches (254 mm) where the building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1. The approved *automatic sprinkler system* shall be provided in both the room and that part of the building in which the room is located.
3. Foam plastic insulation that is a part of a Class A, B or C roof-covering assembly provided the assembly with the foam plastic insulation satisfactorily passes NFPA 276 or UL 1256. The smoke-developed index shall not be limited for roof applications.
4. Foam plastic insulation greater than 4 inches (102 mm) in thickness shall have a maximum flame spread index of 75 and a smoke-developed index of 450 where tested at a minimum thickness of 4 inches (102 mm), provided the end use is approved in accordance with Section 2603.9 using the thickness and density intended for use.
5. Flame spread and smoke-developed indexes for foam plastic interior signs in *covered and open mall buildings* provided the signs comply with Section 402.6.4.
6. ~~Foam plastic insulation located between a concrete slab on grade and its subgrade. Such insulation shall also be exempt from the limiting oxygen index (LOI) requirements of ASTM C578.~~

2603.3.1 Insulation between a concrete slab on grade and its subgrade. Flame spread index and smoke-developed index as specified in Section 2603.3 shall not be required for foam plastic insulation located between a concrete slab on grade and its subgrade. Such insulation shall not be subject to oxygen index limits. Vertical insulation at the perimeter of a slab shall meet the requirements of 2603.3.

Commenter's Reason: This Public Comment modifies the original proposal to address feedback from the 2015 IBC - Fire Safety Code Committee and stakeholders. It creates a sub-section under 2603.3 that specifies below-grade uses of foam plastic insulation for which there are no flame spread, smoke-developed, or oxygen index requirements. Use of this proposed change would be optional; the proposed change would not mandate any alteration to current building practice. It would maintain fire safety and increase consumer choice of insulation products for safe use below-grade.

This proposed change covers insulation of concrete slabs on grade. **Figure 1** and **Figure 2** below depict examples of insulation where this proposed change could be used. Uses covered by this proposed change are different from those covered by FS 171-15.

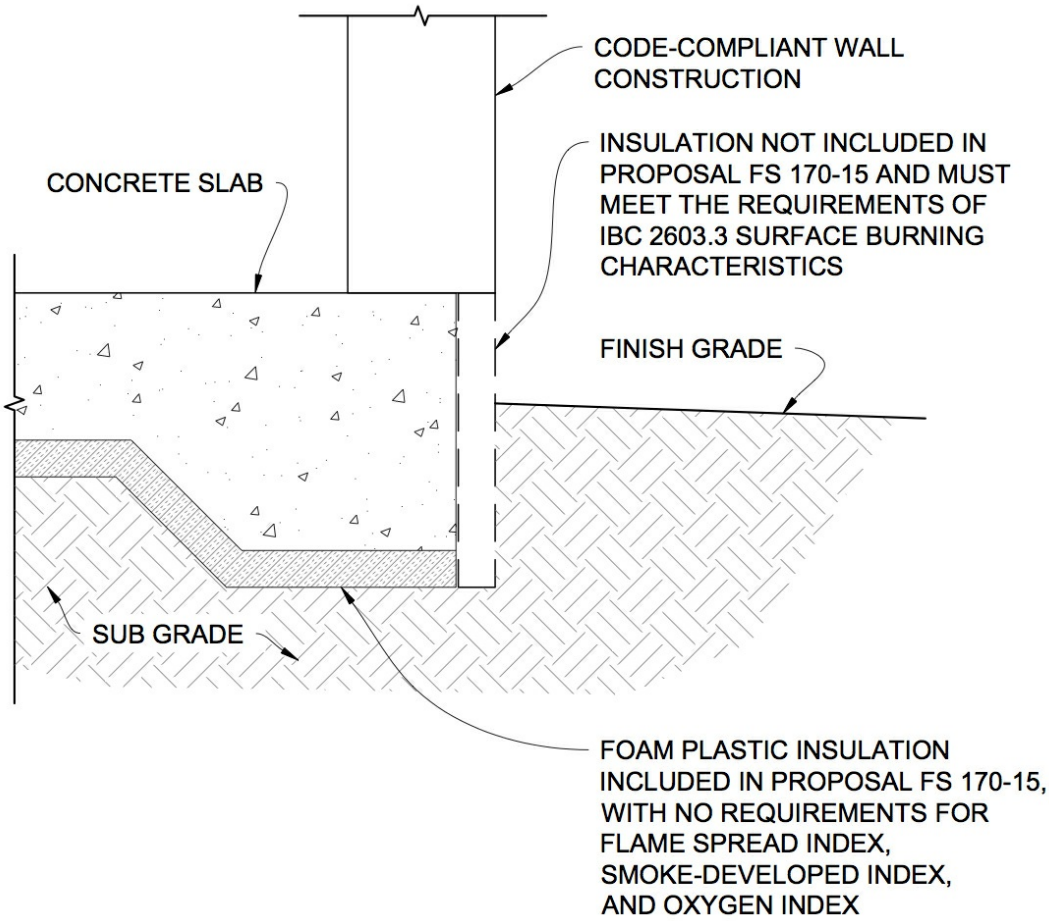


Figure 1: UNDER-SLAB INSULATION AT THICKENED SLAB EDGE

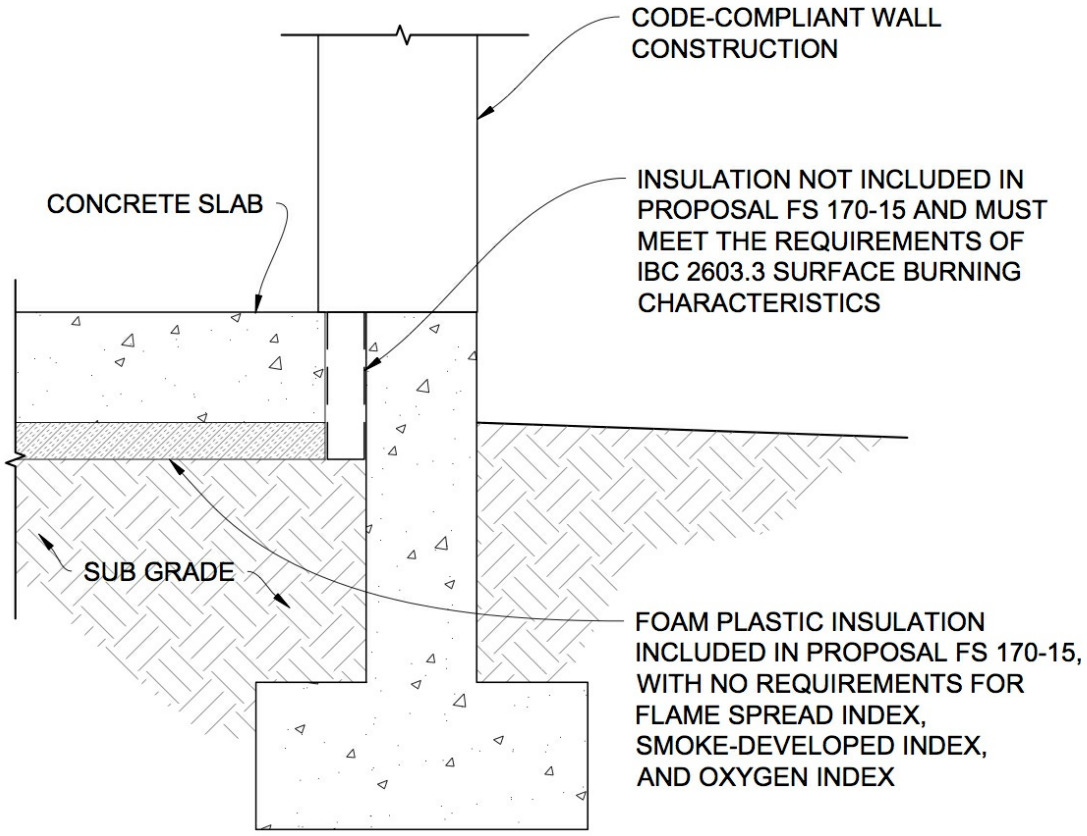


Figure 2: UNDER-SLAB INSULATION AT STEM WALL

This proposed change would maintain fire safety in the following ways:

- Insulation installed in accordance with this proposed code change would be completely separated from the building interior.
- Insulation installed in accordance with this proposed code change does not have access to a realistic source of ignition because it is protected between a minimum of 3.5 inches (89 mm) of concrete and the sub-grade material, as specified in IBC Section **1907 Minimum slab provisions**.
- Insulation installed in accordance with this proposed code change would not have access to adequate oxygen to sustain a fire, as demonstrated by results from preliminary fire tests of below-grade foam plastic insulation. These tests are described below.

Description of Tests: There is no established fire test method for the

configurations covered by this proposed code change, and the co-commenters are unaware of data on flame spread or smoke-developed between concrete and sub-grade material for foams of various material properties. Therefore, in response to requests for testing data of the assemblies included under this proposed code change, Dr. David Rich at Reax Engineering Inc., and Dr. Donald Lucas (Lawrence Berkeley National Laboratory) and Avery Lindeman (Green Science Policy Institute), conducted preliminary tests to evaluate how different foam plastic insulation materials installed below grade would react when subjected to a range of reasonably foreseeable fire spread scenarios.

The insulation materials were sandwiched between concrete pavers (2 inches thick) and earth or other noncombustible surface and ignited at an opening in the pavers to observe fire spread beneath the simulated concrete slab. Tests were conducted with and without an externally applied radiant heat flux comparable to a post-flashover fire condition. Two types of insulation were tested: one that complied with the requirements of International Building Code (IBC) Section **2603.3 Surface burning characteristics**; and a similar below-grade insulation material that did not comply with Section 2603.3 requirements. When there were no openings between the concrete pavers, neither sample of insulation ignited, even at conditions where melting occurred. When there were significant openings (16 square inches) or gaps (2.5 inches) between the concrete pavers, and insulation was subjected to an open flame ignition source and an external heat flux, both samples ignited and burned comparably; however, without an external heat flux, ignition of insulation was followed by limited flame spread, and flames self-extinguished due to restricted access to oxygen as the flame burned away from the opening in the pavers.

- Insulation installed in accordance with this proposed code change would still be subject to the labeling and identification requirements of Section **2603.2 Labeling and identification**, ensuring that foam plastic insulation would be labeled with the product identification and sufficient information to determine that the end use complies with the code requirements.

Oxygen index is not currently limited in Chapter 26 of the IBC. However, the acceptance criteria for certain types of foam plastic insulation (AC12: Acceptance Criteria for Foam Plastic Insulation) require testing to ASTM C578, which limits the permitted oxygen index of polystyrene insulation materials. The purpose of this index is to measure the percent of oxygen in air needed to sustain combustion in a candle-like fire. This is not relevant for the proposed uses of below-grade foam plastic insulation, as demonstrated by the preliminary fire tests discussed above. Oxygen Index would therefore not be limited for insulation covered by this proposed code change.

We are aware of concerns that this proposed code change may increase the fire hazard of foam plastic insulation materials during the transportation, storage, and installation stages of the product lifecycle. If this proposal is approved, we feel that current practices will maintain the current level of fire safety throughout these stages as described below:

- **Transportation:** the U.S. Department of Transportation does not differentiate between foam plastic materials based on surface burning characteristics. Special safety measures are not required for the bulk shipment of foam plastics, including food-grade materials and other foam plastics with varying material properties.
- **Storage and Installation:** As stated in a 2003 Technical Bulletin from the Alliance for the Polyurethanes Industry, "All organic foam insulations, regardless of whether they contain fire retardants, should be considered combustible and handled accordingly. Certain precautions must be taken to minimize any potential for fire through accidental ignition in handling, storage, and use." Therefore the surface burning characteristics required in Section 2603.3 are not sufficient to provide fire safety, and the following practices

should be followed regardless of the Flame Spread and Smoke Developed Indexes of the materials present:

- In accordance with OSHA Regulations for Occupational Safety and Heath and Construction, worksite storage of foam plastics and other flammable materials should be done safely and in a way that does not block exits. The Alliance for the Polyurethane Industry recommends that foam boardstock be stored "in limited quantities, in an accessible location, and free from ignition hazards."
- OSHA regulations also require that hot work adhere to NFPA 51B, which stipulates that activities like welding and cutting should only be performed when appropriate precautions are taken. These include removal or proper protection from sparks, heat, or hot metal of any flammable materials in the vicinity of the work.

The proposed code change does not prohibit the use of foam plastic insulation that meets the requirements of Section 2603.3. Instead, it describes uses in construction where foam plastic insulation may be used safely without requiring the surface burning characteristics specified in Section 2603.3. Use of this proposed change would be optional and would maintain fire safety.

FS170-15

FS171-15
2603.3

Proposed Change as Submitted

Proponent : Samir Mokashi (samir.mokashi@codeul.com); Avery Lindeman, Green Science Policy Institute, representing Green Science Policy Institute (avery@greensciencepolicy.org); Veena Singla, Natural Resources Defense Council, representing Natural Resources Defense Council (vsingla@nrdc.org); Vytenis Babrauskas, Fire Science & Technology Inc., representing Fire Science & Technology Inc.; Tom Lent, Healthy Building Network, representing Healthy Building Network (tlent@healthybuilding.net); Tony Stefani, representing San Francisco Firefighters Cancer Prevention Foundation (stefanit@sbcglobal.net); Bruce Hammond, Hammond & Company Inc., representing Hammond & Company Inc. (bruce@hammondandcompany.com); Nancy Hulsey, HKS, Inc., representing HKS, Inc. (nhulsey@hksinc.com); Robin Guenther, representing Perkins+Will (robin.guenther@perkinswill.com); David Eisenberg, Development Center for Appropriate Technology, representing Development Center for Appropriate Technology (strawnet@gmail.com); Marjorie Smith, Siegel & Strain Architects, representing Siegel & Strain Architects (Msmith@siegelstrain.com); Stacia Miller, International Living Future Institute, representing International Living Future Institute (stacia.miller@living-future.org); Clark Brockman, SERA Architects, Inc., representing SERA Architects, Inc. (clarkb@serapdx.com); Larry Strain, representing Siegel& Strain Architects (lstrain@siegelstrain.com); Russ Pitkin, SERA Architects, Inc., representing SERA Architects, Inc.; Kathy Gerwig, representing Kaiser Permanente; Dennis Murphy, USGBC California, representing USGBC California (dennis@usgbc-california.org); Martin Hammer, representing Martin Hammer, Architect (mfhammer@pacbell.net)

2015 International Building Code

Revise as follows:

2603.3 Surface-burning characteristics. Unless otherwise indicated in this section, foam plastic insulation and foam plastic cores of manufactured assemblies shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450 where tested in the maximum thickness intended for use in accordance with ASTM E 84 or UL 723. Loose fill-type foam plastic insulation shall be tested as board stock for the flame spread and smoke-developed indexes.

Exceptions:

1. Smoke-developed index for interior *trim* as provided for in Section 2604.2.
2. In cold storage buildings, ice plants, food plants, food processing rooms and similar areas, foam plastic insulation where tested in a thickness of 4 inches (102 mm) shall be permitted in a thickness up to 10 inches (254 mm) where the building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1. The approved *automatic sprinkler system* shall be provided in both the room and that part of the building in which the room is located.
3. Foam plastic insulation that is a part of a Class A, B or C roof-covering assembly provided the assembly with the foam plastic insulation satisfactorily passes NFPA 276 or UL 1256. The smoke-developed index shall not be limited for roof applications.
4. Foam plastic insulation greater than 4 inches (102 mm) in thickness shall have a maximum flame spread index of 75 and a smoke-developed index of 450 where tested at a minimum thickness of 4 inches (102 mm), provided the end use is approved in accordance with Section 2603.9 using the thickness and density intended for use.
5. Flame spread and smoke-developed indexes for foam plastic interior signs in *covered and open mall buildings* provided the signs comply with Section 402.6.4.
6. <u>Foam plastic insulation located a minimum of 6 inches (152 mm) below finished grade and separated from building interiors by a masonry or concrete wall or foundation. Such insulation shall also be exempt from the limiting oxygen index (LOI) requirements of ASTM C578.</u>

Reason: This proposal exempts foam plastic insulation used below grade and separated from the building interior from the flame spread index (FSI) and smoke-developed index (SDI) requirements of Section 2603.3 and from the limiting oxygen index (LOI) criteria of ASTM C578. This will maintain building fire safety while reducing the health and environmental impacts of toxic or potentially toxic flame retardant chemicals, and it will increase consumer choice.
Ignition and propagation of fire requires three elements: fuel, an ignition source, and oxygen. The proposed exemption from FSI, SDI, and LOI requirements applies only to foam plastic insulation that is at least 6 inches below finish grade, where there is no significant exposure to ignition sources or oxygen. Since the foam plastic insulation will not burn under these conditions, the provisions of Section 2603.3, that limit surface burning characteristics (FSI and SDI) of foam plastic insulation, are not relevant and provide no fire safety benefit. Similarly, there is no fire safety benefit from meeting the limiting oxygen index (LOI) criteria in ASTM C578. FSI, SDI, and LOI requirements are unnecessary for below-grade uses of foam plastic insulation, where the elements required for a fire do not exist. However, the flame retardants used in foam plastic insulation to meet these requirements pose a significant hazard to human health and ecosystems.

The proposed change does not require additional protection at below-grade wall penetrations beyond those required by other applicable code provisions. At these locations it is highly unlikely that foam plastic insulation on the exterior side of the wall will be exposed to an ignition source, and if a portion of the insulation were somehow exposed, there would not be sufficient oxygen to propagate fire.

Satisfying the FSI, SDI, and LOI criteria typically requires the addition of flame retardants to foam plastic insulation. During manufacture and installation, workers are likely to be exposed to these flame retardants, which have been associated with

neurological and reproductive impairments, hormonal and immune problems, and cancer. These flame retardants are released into the environment during manufacture, demolition, and disposal, and they will eventually migrate out of landfills and other repositories. When thermally processed or burned (for instance, in an incinerator or a landfill), insulation containing halogenated flame retardants can generate highly persistent and toxic halogenated dioxins and furans and other toxic combustion byproducts. Exposure to these dioxins and furans has been associated with cancer and other human health and ecological harm.

HBCD (hexabromocyclododecane) is the flame retardant used most commonly in polystyrene insulation, a typical variety of foam plastic insulation used below-grade. In 2013 under the Stockholm Convention, over 150 countries agreed to eliminate HBCD from the global marketplace due to its persistence and toxicity. The chemical alternatives to HBCD are also highly persistent halogenated flame retardants and are expected to have some comparable adverse health and ecological impacts. Reducing the unnecessary use of harmful flame retardants will reduce exposure and harm to construction workers, emergency responders, the general public, and ecosystems.

The proposed change does not prohibit the use of flame retardants in foam plastic insulation. Instead, it describes conditions under which foam plastic insulation without flame retardants can be used safely in buildings. This change would include below-grade insulation placed horizontally for frost-protected shallow foundations per Section 1809.5(2); such insulation must also comply with the insulation protection requirements of this section and the referenced standard ASCE 32.

It is envisioned that insulation without flame retardants for use as described in this proposed exception would require labeling that complies with Section 2603.2. This labeling would be the responsibility of the insulation manufacturer, in the same way that it is currently the manufacturer's responsibility to properly label foam plastic insulation for the end uses described in Exceptions 1 through 5 of Section 2603.3.

This code change will maintain fire safety, reduce the adverse health and environmental impacts of toxic flame retardants used in foam plastic insulation, and expand consumer choice.

Cost Impact: Will not increase the cost of construction
The proposed code change will not require any action that increases construction costs since it does not mandate any change from current practice. Utilizing the proposed code change would not require any alteration to design or construction practices. The proposed change would enable voluntary manufacture and use of alternative foam plastic insulation products that do not contain flame retardant chemicals. The cost of using these alternative insulation products may be higher, lower, or the same as the cost of using currently available insulation depending on formulation costs, production volumes, consumer demand, and level of competition.

FS171-15 : 2603.3-LINDEMAN3805

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this change based on the following: no fire test data has been submitted on the product used in this application – fire can get below ground and protection by the masonry or concrete wall or foundation may not always be enough; this is a more susceptible location than that proposed in FS170; and the 6 inch dimension is arbitrary and may not always be there after occupancy causing an exposure issue, which could then increase flame spread to other portions of the exterior of the building.

Individual Consideration Agenda

Public Comment 1:

Proponent : Avery Lindeman, Green Science Policy Institute, representing Green Science Policy Institute (avery@greensciencepolicy.org); Veena Singla, representing Natural Resources Defense Council; Bruce Hammond, Hammond & Company Inc., representing Hammond & Company Inc.; Tom Lent, Healthy Building Network, representing Healthy Building Network (tlent@healthybuilding.net); Vytenis Babrauskas, Fire Science and Technology Inc., representing Fire Science and Technology Inc.; Marjorie Smith, representing Siegel & Strain Architects (Msmith@siegelstrain.com); Stacia Miller, International Living Future Institute, representing International Living Future Institute (stacia.miller@living-future.org); Russ Pitkin, SERA Architects, Inc., representing SERA Architects, Inc (russp@serapdx.com); Dennis Murphy, representing USGBC California (dennis@usgbc-california.org); David Eisenberg, Development Center for Appropriate Technology, representing Development Center for Appropriate Technology (strawnet@gmail.com); Tony Stefani, representing San Francisco Firefighters Cancer Prevention Foundation (stefanit@sbcglobal.net); Martin Hammer, representing Martin Hammer, Architect (mfhammer@pacbell.net); Nancy Hulsey, representing HKS, Inc. (nhulsey@hksinc.com); Larry Strain, representing Siegel & Strain Architects (lstrain@siegelstrain.com); Samir Mokashi, Code Unimited, representing Green Science Policy Institute (samir.mokashi@codeul.com); Amanda Kaminsky, representing The Durst Organization (akaminsky@durst.org); Kathy Gerwig, representing Kaiser Permanente; Suzanne Drake, representing Perkins+Will (suzanne.drake@perkinswill.com); Ernest Pacheco, representing Communications Workers of America - District 9 (erniepacheco@cwa9412.org); Karen Burbano, representing REWS [e] team, Design & Construction Integrator (kburbano@google.com); Donald Lucas (d_lucas@lbl.gov); Charlotte Brody, representing BlueGreen Alliance (cbrody@bluegreenalliance.org); Jen Jackson, representing San Francisco Dept of the Environment and San Francisco Fire Dept (cynthia.jackson@sfgov.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

2603.3 Surface-burning characteristics. ~~Unless~~ Except as provided for in Section 2603.3.1 or otherwise indicated in this section, foam plastic insulation and foam plastic cores of manufactured assemblies shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450 where tested in the maximum thickness intended for use

in accordance with ASTM E 84 or UL 723. Loose fill-type foam plastic insulation shall be tested as board stock for the flame spread and smoke-developed indexes.

Exceptions:

1. Smoke-developed index for interior *trim* as provided for in Section 2604.2.
2. In cold storage buildings, ice plants, food plants, food processing rooms and similar areas, foam plastic insulation where tested in a thickness of 4 inches (102 mm) shall be permitted in a thickness up to 10 inches (254 mm) where the building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1. The approved *automatic sprinkler system* shall be provided in both the room and that part of the building in which the room is located.
3. Foam plastic insulation that is a part of a Class A, B or C roof-covering assembly provided the assembly with the foam plastic insulation satisfactorily passes NFPA 276 or UL 1256. The smoke-developed index shall not be limited for roof applications.
4. Foam plastic insulation greater than 4 inches (102 mm) in thickness shall have a maximum flame spread index of 75 and a smoke-developed index of 450 where tested at a minimum thickness of 4 inches (102 mm), provided the end use is approved in accordance with Section 2603.9 using the thickness and density intended for use.
5. Flame spread and smoke-developed indexes for foam plastic interior signs in *covered and open mall buildings* provided the signs comply with Section 402.6.4.
6. ~~Foam plastic insulation located a minimum of 6 inches (152 mm) below finished grade and separated from building interiors by a masonry or concrete wall or foundation. Such insulation shall also be exempt from the limiting oxygen index (LOI) requirements of ASTM C578.~~

2603.3.1 Exterior below-grade wall or foundation insulation. Flame spread index and smoke-developed index as specified in Section 2603.3 shall not be required for foam plastic insulation separated from the building interior by a masonry or concrete wall or foundation in the following locations:

1. Vertical insulation installed a minimum of 6 inches (152 mm) below finished exterior grade.
2. Horizontal insulation installed a minimum of 12 inches (304 mm) below finished exterior grade and extending no more than 24 inches outward from the foundation edge.
3. Horizontal insulation installed below finished exterior grade and protected by a concrete slab on the ground surface directly above the insulation.

Oxygen index shall not be limited for such insulation.

Commenter's Reason: This Public Comment modifies the original proposal to

address feedback from the 2015 IBC - Fire Safety Code Committee and stakeholders. It creates a sub-section under 2603.3 that specifies below-grade uses of foam plastic insulation for which there are no flame spread, smoke-developed, and oxygen index requirements. Use of this proposed change would be optional; the proposed change would not mandate any alteration to current building practice. It would maintain fire safety and increase consumer choice of insulation products for safe use below-grade.

This proposed change covers exterior insulation for basement and foundation walls and frost-protected shallow foundations. **Figure 1** and **Figure 2** below depict examples of insulation where the proposed change could be used. Uses covered by this proposed change are different from those covered by FS 170-15.

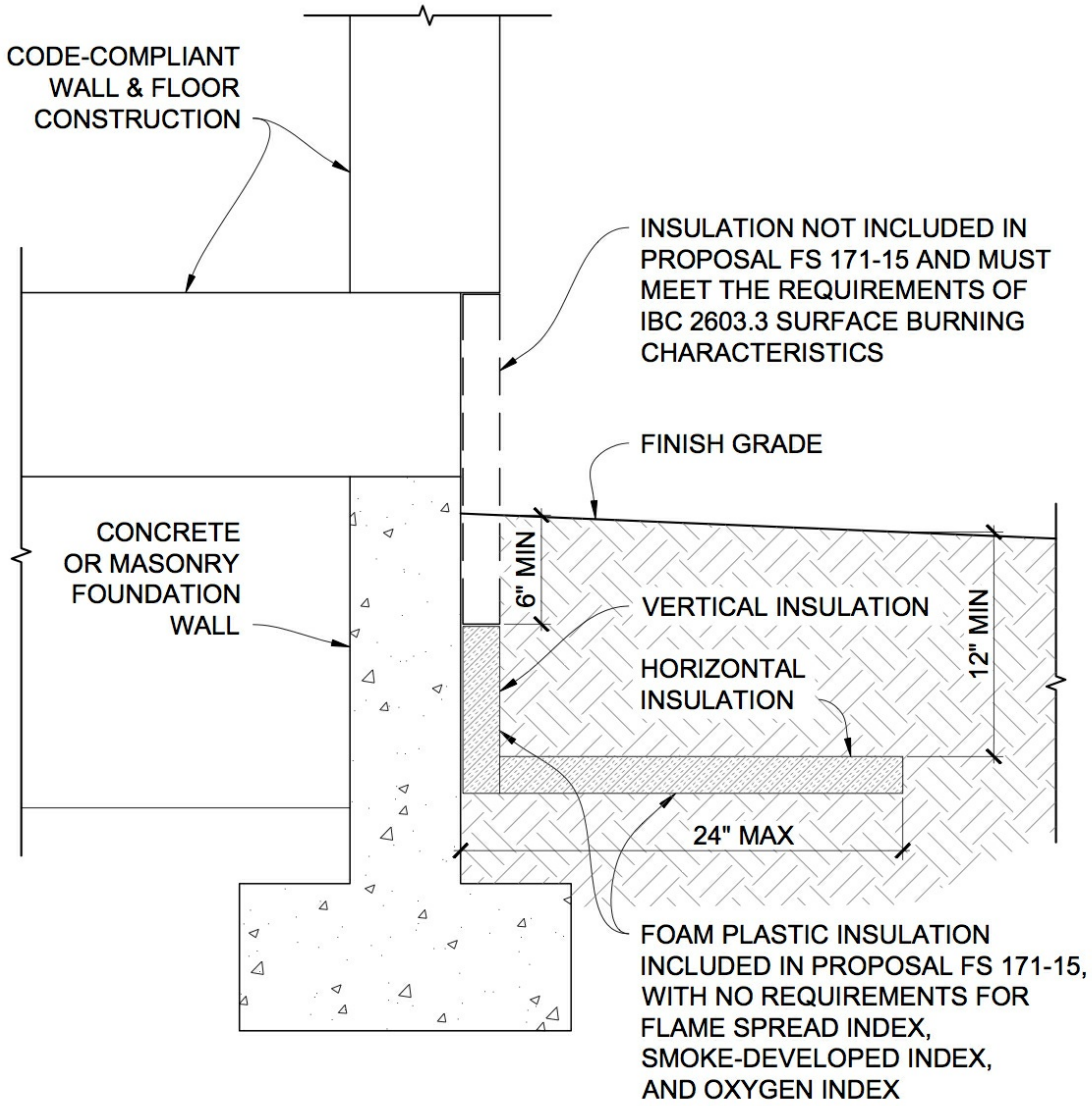


Figure 1: EXTERIOR BELOW-GRADE INSULATION

Proposed Code Section 2603.3.1 (1) and 2603.3.1 (2)

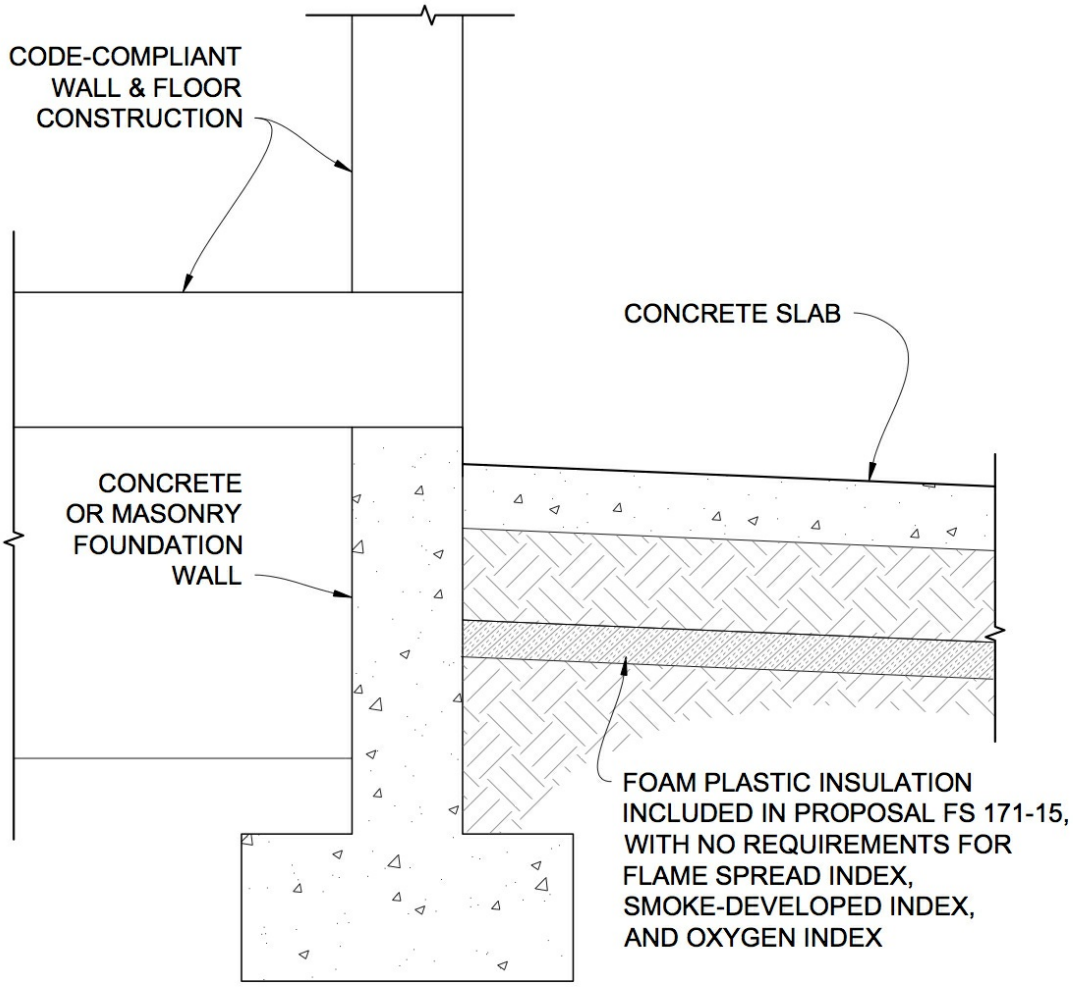


Figure 2: EXTERIOR BELOW-GRADE INSULATION WITH CONCRETE SLAB PROTECTION
Proposed Code Section 2603.3.1 (3)

This proposed change would maintain fire safety in the following ways:

- Insulation installed in accordance with this proposed code change would be completely separated from the building interior.
- Insulation installed in accordance with this proposed code change would not have access to a realistic source of ignition because it is completely protected by concrete, masonry, or soil. Due to concerns that insulation covered by this proposal might become exposed during the course of use, the following publications provided precedent for establishing adequate protection. All four references establish protection requirements for insulation installed below finished exterior grade. Insulation installed in accordance with these codes and standards is considered sufficiently protected from possible damage or exposure. Where requirements differed between these documents, the most

conservative protection requirements were used. See **Table 1** for further detail.

- The 2015 International Building Code (IBC) Section **1809.5 Frost protection**
- ASCE 32-01: Design and Construction of Frost Protected Shallow Foundations
- The 2015 International Energy Conservation Code (IECC), Sections **C303.2.1 Protection of exposed foundation insulation** and **C402.2.6 Slabs on grade**
- The 2015 International Residential Code (IRC) **Section 403.3.2 Protection of horizontal insulation below ground**

- Insulation installed in accordance with this proposed code change would not have access to adequate oxygen to sustain a fire, as demonstrated by results from preliminary fire tests of below-grade foam plastic insulation. These tests are described below.

  Description of Tests: There is no established fire test method for the configurations covered by this proposed code change, and the co-commenters are unaware of data on flame spread or smoke-developed between concrete and sub-grade material for foams of various material properties. Therefore, in response to requests for testing data of the assemblies included under this proposed code change, Dr. David Rich at Reax Engineering Inc., and Dr. Donald Lucas (Lawrence Berkeley National Laboratory) and Avery Lindeman (Green Science Policy Institute), conducted preliminary tests to evaluate how different foam plastic insulation materials installed below grade would react when subjected to a range of reasonably foreseeable fire spread scenarios.

  The insulation materials were sandwiched between concrete pavers (2 inches thick) and earth or other non-combustible surface and ignited at an opening in the pavers to observe fire spread beneath the simulated concrete slab. Tests were conducted with and without an externally applied radiant heat flux comparable to a post-flashover fire condition. Two types of insulation were tested: one that complied with the requirements of International Building Code (IBC) Section **2603.3 Surface burning characteristics**; and a similar below-grade insulation material that did not comply with Section 2603.3 requirements. When there were no openings between the concrete pavers, neither sample of insulation ignited, even at conditions where melting occurred. When there were significant openings (16 square inches) or gaps (2.5 inches) between the concrete pavers, and insulation was subjected to an open flame ignition source and an external heat flux, both samples ignited ands burned comparably; however, without an external heat flux, ignition of insulation was followed by limited flame spread, and flames self-extinguished due to restricted access to oxygen as the flame burned away from the opening in the pavers.

- Insulation installed in accordance with this proposed code change would still be subject to the labeling and identification requirements of Section **2603.2 Labeling and identification**, ensuring that foam plastic insulation would be labeled with the product identification and sufficient information to determine that the end use complies with the code requirements.

Table 1: Comparison of Proposed Provisions with Existing Codes and Standards

Proposed Code Section	Proposed Code Language	Summary of Relevant Existing Codes and Sta
	Vertical insulation installed a minimum	IECC Section C303.2.1 and ASCE 32 require that a

2603.3.1 (1)	of 6 inches (152 mm) below finished exterior grade.	foundation wall insulation extend at least 6 inches against "ultraviolet radiation, physical damage, or protective covering is required.
2603.3.1 (2)	Horizontal insulation installed a minimum of 12 inches (304 mm) below finished exterior grade and extending no more than 24 inches outward from the foundation edge.	IBC Section 1809.5 allows for frost protection of sl require additional protection of insulation when in does not extend outward more than 24 inches fro to be protected by a minimum of 10 inches of soil. change.
2603.3.1 (3)	Horizontal insulation installed below finished exterior grade and protected by a concrete slab on the ground surface directly above the insulation.	ASCE 32 requires that horizontal insulation installe portion "extending outward more than 24 inches f or asphalt pavement on the ground surface direct on the top surface of the insulation. IRC Section R concrete slab" subject to requirements of IBC Sec thickness of 3.5 inches (89 mm). IECC Section C40 protected by pavement or by a minimum of 10 incl conservative of these requirements, which is prote thick.

Oxygen index is not currently limited in Chapter 26 of the IBC. However, the acceptance criteria for certain types of foam plastic insulation (AC12: Acceptance Criteria for Foam Plastic Insulation) require testing to ASTM C578, which limits the permitted oxygen index of polystyrene insulation materials. The purpose of this index is to measure the percent of oxygen in air needed to sustain combustion in a candle-like fire. This is not relevant for the proposed uses of below-grade foam plastic insulation, as demonstrated by the preliminary fire tests discussed above. Oxygen Index would therefore not be limited for insulation covered by this proposed code change.

We are aware of concerns that this proposed code change may increase the fire hazard of foam plastic insulation materials during the transportation, storage, and installation stages of the product lifecycle. If this proposal is approved, we feel that current practices will maintain the current level of fire safety throughout these stages as described below:

- **Transportation:** the U.S. Department of Transportation does not differentiate between foam plastic materials based on surface burning characteristics. Special safety measures are not required for the bulk shipment of foam plastics, including food-grade materials and other foam plastics with varying material properties.
- **Storage and Installation:** As stated in a 2003 Technical Bulletin from the Alliance for the Polyurethanes Industry, "All organic foam insulations, regardless of whether they contain fire retardants, should be considered combustible and handled accordingly. Certain precautions must be taken to minimize any potential for fire through accidental ignition in handling, storage, and use." Therefore the surface burning characteristics required in Section 2603.3 are not sufficient to provide fire safety, and the following practices should be followed regardless of the Flame Spread and Smoke Developed Indexes of the materials present:
    - In accordance with OSHA Regulations for Occupational Safety and Heath and Construction, worksite storage of foam plastics and other flammable materials should be done safely and in a way that does not block exits. The Alliance for the Polyurethane Industry recommends that foam boardstock be stored "in limited quantities, in an accessible location, and free from ignition hazards."
    - OSHA regulations also require that hot work adhere to NFPA 51B, which

stipulates that activities like welding and cutting should only be performed when appropriate precautions are taken. These include removal or proper protection from sparks, heat, or hot metal of any flammable materials in the vicinity of the work.

The proposed change does not prohibit the use of foam plastic insulation that meets the requirements of Section 2603.3. Instead, it describes uses in construction where foam plastic insulation may be used safely without requiring the surface burning characteristics specified in Section 2603.3. Use of this proposed change would be optional and would maintain fire safety.

FS171-15

FS173-15
2603.5.5

Proposed Change as Submitted

Proponent : John Woestman, Kellen Company, representing Extruded Polystyrene Foam Association (XPSA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

2603.5.5 Vertical and lateral fire propagation. The exterior wall assembly shall be tested in accordance with and comply with the acceptance criteria of NFPA 285 and the foam plastic insulation shall comply with the provisions of Section 2603.5.4.

Exceptions:

1. One-story buildings complying with Section 2603.4.1.4.
2. Wall assemblies where the foam plastic insulation is covered on each face by not less than 1-inch (25 mm) thickness of masonry or concrete and meeting one of the following:
    - 2.1. There is no airspace between the insulation and the concrete or masonry.
    - 2.2. The insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E 84 or UL 723 and the maximum airspace between the insulation and the concrete or masonry is not more than 1 inch (25 mm).

Reason: This proposed code change clarifies the existing dual requirement of a satisfactory NFPA 285 test in Section 2603.5.5 and an ASTM E 84 / UL 723 test in Section 2603.5.4. This proposal does not add any additional test requirements to the code. There is currently a misunderstanding in the market that a foam plastic insulation material which would not meet the ASTM E84 Class A performance requirements is allowed by the code to be used in an assembly which has passed the NFPA 285 assembly fire test. This proposal clarifies the applicability of the code provisions of 2603.5.4, by requiring a Class A material in an NFPA 285 assembly.

Cost Impact: Will not increase the cost of construction
No cost increase. Proposed change reinforces current code requirement.

FS173-15 : 2603.5.5-WOESTMAN5564

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that the proposed language was redundant and unnecessary.

Individual Consideration Agenda

Public Comment 1:

Proponent : John Woestman, Kellen, representing Extruded Polystyrene Foam Association (XPSA) (jwoestman@kellencompany.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

2603.5.5 Vertical and lateral fire propagation. The exterior wall assembly shall be tested in accordance with and comply with the acceptance criteria of NFPA 285 ~~and the~~ . The foam plastic insulation component of the exterior wall assembly shall comply with ~~the provisions of~~ Section 2603.5.4.

Exceptions:

1. One-story buildings complying with Section 2603.4.1.4.
2. Wall assemblies where the foam plastic insulation is covered on each face by not less than 1-inch (25 mm) thickness of masonry or concrete and meeting one of the following:
    - 2.1. There is no airspace between the insulation and the concrete or masonry.
    - 2.2. The insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E 84 or UL 723 and the maximum airspace between the insulation and the concrete or masonry is not more than 1 inch (25 mm).

Commenter's Reason: Addressing the committee reason, we agree. But, unfortunately, we are also seeing situations where the interpretation and application of the code is not consistent with the code requirements. We are proposing this revised language to reinforce that foam plastic insulation used in exterior wall assemblies is required to meet the insulation material fire performance requirements of 2603.5.4 and the wall assembly fire performance requirements of 2603.5.5.

FS173-15

FS178-15

2603.7, 2603.7.1, 2603.7.2

Proposed Change as Submitted

Proponent : Tony Crimi, representing North American Insulation Manufacturers Association (tcrimi@sympatico.ca)

2015 International Building Code

2603.7 Foam plastic insulation used as interior finish or interior trim in plenums. Foam plastic insulation used as interior wall or ceiling finish or as interior trim in plenums shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 and shall comply with one or more of Sections 2603.7.1, 2603.7.2 and 2607.3.

2603.7.1 Separation required. The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

Revise as follows:

2603.7.2 Approval. The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 when tested in accordance with NFPA 286. ~~The foam plastic insulation shall be approved based on tests conducted in accordance with Section 2603.9.~~

Reason: The last sentence of 2603.7.2 creates a conflict with the remainder of the requirement.
IBC 2603.7 and 2603.7.1 are clear in stating that ASTM E84 or UL 723 are to be used to determine the flame spread index and smoke developed index. This is very typical in the IBC. IBC 2603.7.2 also identifies the required test methods as ASTM E 84 and UL 723, and the required ratings to be derived from those tests, and identifies NFPA 286 and the acceptance criteria in 803.1.2 (which includes smoke measurement) as a requirement.

The problem is then with the last sentence of 2603.7.2 which directs the Code official to "approve" the insulation based on a different set of room fire tests, which do not all provide a flame spread and smoke developed value. It is not clear if this is to be in addition to the flame spread and smoke developed results, or in place of those tests.

Since 2603.9 does not exempt the material from compliance with 2603.7, it appears that both sets of criteria must be met. This is reasonable in that 3 of the 4 large-scale tests identified in 2603.9 do not have limitations on smoke development. Furthermore, based on the language in 2603.9, alternative tests could also be permitted, and what those do or do not measure is not known. However, since compliance with NFPA 286 is already required in 2603.7.2, and NFPA 286 and the acceptance criteria in 803.1.2 are also identified in 2603.9, it appears this sentence is redundant.

Cost Impact: Will not increase the cost of construction
The proposal will potentially eliminate redundant testing to additional standards

other than UL 723, ASTM E84, and NFPA 286

Public Hearing Results

Committee Action: Approved as Modified

Modification:

2603.7.2 Approval. The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 when tested in accordance with NFPA 286. Alternatively, the foam plastic insulation shall
be approved based on tests conducted in accordance with Section 2603.9.

Committee Reason: The committee agrees that compliance with Section 2603.9 should not be mandated as there are other paths to compliance. The modification keeps reference to compliance with Section 2603.9 as an alternative.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

2603.7 Foam plastic ~~insulation used~~ in plenums as interior finish or interior trim ~~in plenums~~. Foam plastic ~~insulation~~ in plenums used as interior wall or ceiling finish, or interior trim, shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the maximum thickness and density intended for use, and shall be tested in accordance with NFPA 286 and meet the acceptance criteria of Section 803.1.2. As an alternative to testing to NFPA 286, the foam plastic shall be approved based on tests conducted in accordance with Section 2603.9.

Exceptions:

1. Foam plastic in plenums used as interior wall or ceiling finish, or interior trim ~~in plenums~~ , shall exhibit a flame spread index of 75 or less and a smoke-developed index of

450 or less when tested in accordance with ASTM ~~E 84~~ E84 or UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by a thermal barrier complying with Section 2603.4.

2. Foam plastic in plenums used as interior wall or ceiling finish, or interior trim, shall ~~comply~~ exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ~~one~~ ASTM E84 or ~~more~~ UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by corrosion-resistant steel having a base metal thickness of ~~Sections 2603.7.1~~ not less than 0.0160 inch (0.4 mm).
3. Foam plastic in plenums used as interior wall or ceiling finish, ~~2603.7.2~~ or interior trim, shall exhibit a flame spread index of 75 or less and ~~2607.3~~ a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by not less than a 1 inch (25 mm) thickness of masonry or concrete.

~~**2603.7.1 Separation required.** The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~

~~**2603.7.2 Approval.** The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 when tested in accordance with NFPA 286. The foam plastic insulation shall be approved based on tests conducted in accordance with Section 2603.9.~~

~~**2603.7.3 Covering.** The foam plastic insulation shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~

2015 International Mechanical Code

602.2.1.6 Foam plastic ~~insulation~~ in plenums as interior finish or interior trim. Foam plastic ~~insulation used~~ in plenums used as interior wall or ceiling finish or interior trim, shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the maximum thickness and density intended for use and shall be tested in accordance with NFPA 286 and meet the acceptance criteria of Section 803.1.2 of the International Building Code. As an alternative to testing to NFPA 286, the foam plastic shall be approved based on tests conducted in accordance with Section 2603.9 of the International Building Code.

Exceptions:

1. Foam plastic in plenums used as interior wall or ceiling finish, or interior trim, shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM ~~E 84~~ E84 or UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by a thermal barrier complying with Section 2603.4 of the International Building Code.
2. Foam plastic in plenums used as interior wall or ceiling finish, or interior trim, shall ~~also comply~~ exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ~~one~~ ASTM E84 or ~~more~~ UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by corrosion-resistant steel having a base metal thickness of ~~Sections 602.2.1.6.1~~ not less than 0.0160 inch (0.4 mm).
3. Foam plastic in plenums used as interior wall or ceiling finish, ~~602.2.1.6.2~~ or interior trim, shall exhibit a flame spread index of 75 or less and ~~602.2.1.6.3~~ a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by not less than a 1 inch (25 mm) thickness of masonry or concrete.

~~**602.2.1.6.1 Separation required.** The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 of the *International Building Code* and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~

~~**602.2.1.6.2 Approval.** The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 of the *International Building Code* when tested in accordance with NFPA 286.~~

~~The foam plastic insulation shall be approved based on tests conducted in accordance with Section 2603.9 of the *International Building Code*.~~

~~**602.2.1.6.3 Covering.** The foam plastic insulation shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~

Commenter's Reason: During the code cycle that led to the approval of the 2015 IBC and 2015 IMC Agreement was reached that section 2603.7 of the IBC and section 602.2.1.6 of the IMC (via FS 189-12) would have identical language. Unfortunately, proposals were allowed separately to each code section in this cycle. Code proposal M70 was handled by the IMC committee and accepted as modified and it introduced improved language into both IBC 2603.7 and IMC 602.2.1.6, meaning that both would retain identical language. In the same section proposal FS 178 was approved as modified by the IBC FS committee and it introduced some new language into IBC 2603.7 but not into IMC 602.2.1.6. This public comment simply combines both

proposals, as accepted by the technical committees and generates identical language into both code sections. A slight change in language was needed for the added sentence from FS 178 because it needed to clarify that the alternate testing refers only to NFPA 286 testing and does not exclude the foam plastic to having to be tested to ASTM E84 (each with the appropriate criteria).

Public Comment 2:

Proponent : Tim Earl, representing GBH International (tearl@gbhinternational.com) requests Disapprove.

Commenter's Reason: Last cycle, a proposal passed which modified Section 2603.7 to duplicate the language in Section 602.2.1.5 of the IMC. These two sections were not assigned to the same code development committee, so if this proposal passes, it would create a conflict between the IMC and the IBC. Unless this is corrected with a Public Comment to revise Section 602.2.1.5.2, request disapproval.

FS178-15

FS179-15

2603.7.4 (New)

Proposed Change as Submitted

Proponent : Tony Crimi, representing North American Insulation Manufacturers Association (tcrimi@sympatico.ca)

2015 International Building Code

Add new text as follows:

2603.7.4 Building panel systems Foam plastic insulation used as part of a factory assembled panel system shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm). The foamed plastic insulation shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use. The manufactured building panel system shall also conform to the flame spread and smoke-developed requirements of Chapter 8 when tested in accordance with ASTM E 84 or UL 723 at the thickness intended for use, unless special approval is obtained on the basis of Section 2603.9. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.

Reason: This proposal introduces clear language for testing of metal faced foamed plastic core sandwich panels. The proposal clarifies that both the foamed plastic insulation and the foam filled panel systems need to be tested. The requirement to test a joint or seam is included for consistency with current laboratory and Certification practices. This portion of the proposal language is taken directly from IBC section 2603.9. The requirements for the foamed plastic core material are identical to 2603.7.3. However, the requirements for the finished panel system would be as required by Chapter 8, depending upon the use of the product.
The IBC has several references to foamed plastic sandwich panels. Typically, sandwich panels are manufactured products. Many use a covering of corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm). However, it is not clear whether the current provision in 2603.7.3 applies to factory assembled panels because the ASTM E84/UL 723 testing requirement only expresses limits for the foam insulation core, not for the composite product.

When sandwich wall or ceiling panels are tested, they do not always yield better flame spread and smoke developed values than the base foam insulation core. For example, higher smoke developed indexes This is demonstrated in numerous UL Listings under their CCN "BLBT" for Surface Burning Characteristics of Building Units. Based on this experience, Laboratories like UL evaluate this effect by testing the sample with a longitudinal butt joint, using a factory or field joint (as applicable).

For building units consisting of an interior core material faced on both surfaces, the UL certification of the product already includes the surface-burning characteristics of the core material in addition to the surface-burning characteristics of the finished product.

Cost Impact: Will not increase the cost of construction

The proposal is consistent with the practices of Laboratories such as UL.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this item based on a lack of a definition for building panel systems. Without a definition products may be inadvertently included or excluded from these requirements.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Tony Crimi, representing North American Insulation Manufacturers Association (tcrimi@sympatico.ca) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

~~**2603.7.4**~~ **2603.8** **Factory Assembled Building** ~~**panel systems**~~ **Panels** Foam plastic insulation used as part of a factory assembled panel ~~system~~ shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) , or approved alternative protection. The foamed plastic insulation shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use. The ~~manufactured~~ factory assembled building ~~panel system~~ panels shall also conform to the flame spread and smoke-developed requirements of Chapter 8 when tested in accordance with ASTM E 84 or UL 723 at the thickness intended for use, unless special approval is obtained on the basis of Section 2603.9. ~~Assemblies tested~~ This testing shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.

Commenter's Reason: This proposal introduces a new section with clear requirements for testing of foamed plastic core sandwich panels. This public comments clarifies that both the foamed plastic insulation and the foam filled panel systems need to be tested using ASTM E84, UL 723, or one of the approved alternative methods in 2603.9. This proposal consolidates the current requiremnts into one section to simplify enforcement and be consistent with common industry practice.

For example, UL has numerous UL Listings under their CCN "BLBT" for Surface Burning Characteristics of Building Units. The UL category covers building units, consisting of proprietary mixes of organic and/or inorganic materials formed into panels, blocks, boards, planks, slabs, or sheets fabricated into various sizes, thicknesses and shapes, certified as to surface-burning characteristics. This class of products are often reffered to as Sandwich Panels, or Factory-Assembled Building panels. Consequently, a separate definition, is not critical.

Because some building units are provided with facings or are composites of several

materials which may affect the contribution of combustibles under fire conditions. This effect is determined by testing the sample with a longitudinal butt joint, constructed by slitting the facing or by using a factory or field joint (if applicable). Testing has demonstrated that when sandwich wall or ceiling panels are tested, they do not always yield better flame spread and smoke developed values than the base foam insulation core. For example, higher smoke developed indexes are not uncommon. This is demonstrated in numerous UL Listings under their CCN "BLBT". Based on this experience, Laboratories like UL evaluate this effect by testing the sample with a longitudinal butt joint, using a factory or field joint (as applicable). For building units consisting of an interior core material faced on both surfaces, the certification of the product includes the reporting of the surface-burning characteristics of the core material in addition to the surface-burning characteristics of the finished product.

FS179-15

S2-15

[BF] 1505.9, Chapter 35

Proposed Change as Submitted

Proponent : Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

THIS PROPOSAL WAS HEARD BY THE FIRE SAFETY COMMITTEE.

2015 International Building Code

Revise as follows:

[BF] 1505.9 ~~Photovoltaic panels and modules.~~ Rooftop mounted photovoltaic panel systems Rooftop-mounted *photovoltaic panel systems* shall be tested, *listed* and identified with a fire classification in accordance with UL 1703 or UL 2703. The fire classification shall comply with Table 1505.1 based on the type of construction of the building.

Add new standard(s) as follows:
UL 2703-14, Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels

Reason: The position of the photovoltaic panels, as well as the slope of the roof, are critical factors in determining the fire classification of a photovoltaic panel system. The position of the photovoltaic panels is established by the racking system. Thus, the testing for photovoltaic panel systems are covered in both UL 1703 and UL 2703. The new UL 2703 standard, which is an ANSI consensus standard, provides the test method for testing multiple panels for each racking system. Either standard can be used to establish a fire classification of the photovoltaic panel system.

Cost Impact: Will not increase the cost of construction
This will provide another method to test photovoltaic systems for fire classification.

Analysis: A review of the standard proposed for inclusion in the code, UL 2703, with regard to the ICC criteria for refrenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

S2-15 : [BF] 1505.9-ROBERTS4109

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The committee agreed that the new UL 2703 standard was appropriate and provides the test method for testing multiple panels for each racking system and that either standard can be used to establish a fire classification of the photovoltaic panel system.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

[BF] 1505.9 Rooftop mounted photovoltaic panel systems Rooftop-mounted *photovoltaic panel systems* shall be tested, *listed* and identified with a fire classification in accordance with UL 1703 or with UL 2703 or both, as appropriate. The fire classification shall comply with Table 1505.1 based on the type of construction of the building.

Commenter's Reason: The requirements of UL 1703 and of UL 2703 can be supplementary and therefore the revised language would clarify the listing requirements.

Public Comment 2:

Proponent : Jason Wilen AIA CDT RRO, National Roofing Contractors Association (NRCA), representing National Roofing Contractors Association (NRCA) (jwilen@nrca.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

[BF] 1505.9 Rooftop mounted photovoltaic panel systems ~~Rooftop-mounted~~ Rooftop rack-mounted*photovoltaic panel systems* shall be tested, *listed* and identified with a fire classification in accordance with UL 1703 ~~or~~ and UL 2703. The fire classification shall comply with Table 1505.1 based on the type of construction of the building.

Commenter's Reason: The purpose of this public comment is to clarify S2-15. The proponent's code change allows UL 2703 to be used for rooftop-mounted photovoltaic panel systems to be tested, listed and identified with a fire classification. This would allow rooftop rack-mounted photovoltaic panel systems with photovoltaic modules that do not meet UL 1703 (the code's current requirement) to comply with IBC 2018.
The scope of UL 2703 states in Section 1.1 "...Systems, components and/or devices evaluated under this standard **may** be used to ground and/or mount a PV module **complying with UL 1703** when the specific module or frame has been evaluated for bonding/grounding or the module has been evaluated for mounting with the evaluated system, component or device." [Note: bold text in this quote is for emphasis. The bold text does not appear in the standard]

UL 2703 references UL 1703 but does not in fact require compliance with UL 1703 for PV modules used in rooftop-mounted photovoltaic panel systems. This public comment ensures that all PV modules used on rooftops will be tested, listed and identified with a fire classification in accordance with the level of performance listed in the current code.

G1-15
202

Proposed Change as Submitted

Proponent : Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

AREA, BUILDING. The area included within surrounding *exterior walls* (or *exterior walls* and *fire walls*) exclusive of vent *shafts* and *courts*. Areas of the building not provided with surrounding walls shall be included in the building area if such ~~areas are included within the~~ area has horizontal projection of the roof or floor above. Areas underneath any horizontal projections of five feet or more of roofs, balconies or architectural features shall also be included in the building area.

Reason: Since the code does not specify how much of a projection (12", 3', or 5') becomes floor area, establishing a threshold becomes necessary.

Cost Impact: Will not increase the cost of construction
This code amendment will not increase the cost of construction since it does not add requirements for changing construction. This proposal only seeks clarification of the code requirements.

G1-15 : 202-AREA, BUILDING-CUEVAS4536

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Overall the committee felt that the proposed change would add confusion to the code and not ease administration or interpretation. They found the 5 foot dimension arbitrary and unjustified. This would insert a regulation into the definition instead of a more appropriate place in the code. There was concern that this change would confuse the application of the code to marquees and signs as well as eaves and sunshades used to address requirements of the *International Energy Conservation Code.* Finally there was concern that this change to one of the fundamental definitions of the code would have consequences for other provisions not even guessed at during the hearing.

Assembly Motion: **As Submitted**
Online Vote Results: **Failed**
Support: 20.26% (79) Oppose: 79.74% (311)
Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Lee Kranz, representing Self requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

AREA, BUILDING. The area included within surrounding *exterior walls* (or *exterior walls* and *fire walls*) exclusive of vent *shafts* and *courts*. Areas ~~of the building~~ located under roofs or floors above not provided with ~~surrounding~~ exterior walls shall be included in the building area ~~if such area has horizontal projection of the roof or floor above. Areas~~ . Usable areas located underneath ~~any~~ horizontal projections ~~of five~~ such as roof extensions, impervious balconies or other architectural features that extend 5 feet or more from the exterior wall of ~~roofs, balconies or architectural features~~ the building shall also be included in the building area.

Commenter's Reason: This public comment takes the best of both G1-15 and G2-15. It includes the concept of "Usable areas" and applies it to impervious covered areas that extend "5' or more from the exterior wall of the building". The 5' dimension is based on the proponent's original proposal and an informal survey of building officials who agreed that at least this much space is needed in order to consider a covered area to be usable. As written, the example projections would have to meet both criteria of **usable** and would have to extend **at least 5' from the exterior wall** in order to be considered part of the building area. Combining the two concepts of "areas without exterior walls" and the new proposal to include the term "usable" and a "minimum 5' extension" we have a definition that more accurately represents realistic building areas and property values.

G1-15

G6-15
202

Proposed Change as Submitted

Proponent : Gerald Anderson, City of Overland Park, kansas, representing self (Jerry.Anderson@opkansas.org)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

CUSTODIAL CARE. Assistance with day-to-day living tasks; such as assistance with cooking, taking medication, bathing, using toilet facilities and other tasks of daily living. Custodial care includes persons receiving care who have ~~the ability to respond to emergency situations and evacuate at a slower rate and/or who have~~ _mental and psychiatric complications.

Reason: With this definition we are trying to define or expand upon what exactly "Custodial Care" entails. A persons ability to respond to emergency situations has no connection with the type of care that is provided. It lends nothing to the goal of defining a type of care one receives.
In addition, having a definition that speaks to a persons ability to evacuate in emergency situations, leads to confusion when applying IBC sections 308.3.1 and 308.3.2 as well as sections 310.6.1 and 310.6.2. In applying those sections for I-1 and R-4 occupancies we have two different conditions that specifically address one's capacity to respond to an emergency situation in occupancies that provide for "custodial care". Having a definition, that speaks to a person's ability to respond to an emergency leads to confusion when applying the code.

Cost Impact: Will not increase the cost of construction
changing a definition will have no cost impace

G6-15 : 202-CUSTODIAL CARE-ANDERSON5694

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The phrasing is essential because it identifies one fo the characteristics of the persons being served and therefore the level of care being provided. During the 2015 edition development the CTC worked to provide clear distinction between the occupancy categories based on the type of care being provided. Taking the text out of the definition without replacing it elsewhere in the code, would leave a gap in methods to establish the distinct care occupancies.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association,

representing Portland Cement Association (jhall@cement.org) requests Approve as Submitted.

Commenter's Reason: The existing definition is vague and unenforceable. How are inspectors or plan reviewers expected to know when people suffering from mental or psychiatric illness can or cannot exit on their own? What are slower evacuation times? Removing this language reduces the ambiguity of whether residents can or cannot exit on their own at any given time.

G6-15

G7-15
202

Proposed Change as Submitted

Proponent : Michael Anthony, University of Michigan, representing University of Michigan (maanthon@umich.edu)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

DORMITORY~~.~~ (STUDENT RESIDENCE FACILITY) A space in a building where group sleeping and cooking accommodations are provided in one room, or in a series of closely associated rooms, for persons not members of the same family group, under joint occupancy and single management, as in college dormitories (student residence facilities) or fraternity houses.

Reason: This proposal is intended to correlate with related proposals:
a) Section 310.2 for Residential Group - R, where the word dormitory appears

b) A proposal submitted separately, but coordinated with Brian Fitzgerald, Associate Director of Housing at the University of Michigan and an active member of ACUHO-1, the trade association for campus housing and student residence life professionals.

The term DORMITORY is used in both NFPA 101 and IBC. The common understanding of the term should not only be harmonized between both documents, but the term "dormitory" should be dropped from the vocabulary of the IBC entirely as it applies to the education facilities industry. This proposal is written with parenthetic clarification with the hope that after 2 or 3 revisions of the IBC, the term dormitory will be used in the context of prison, detention or military facilities.

1. The term "dormitory" is used less frequently as the reference material from ACUHO-i indicates. This pattern -- away from the word dormitory (which carries with it the association of detention, correctional, and military facilities) is likely to be seen in the plan review of building departments where the IBC is use. At the time the word "dormitory" came into use the education industry was smaller, did not have the requirement for in-residence instruction, and the financing of (frequently lavish) student living centers by student housing property trusts.

2. The word "dormitory" is used also in NFPA 101 in connection with detention and correctional facilities

3. Part of the year, these facilities are used by permanent residences to live and learn without having to leave student living center to another building on campus; thus the cooking facilities.

4. During the summer months these student living centers are used by transient "campers" -- frequently below 12-grade.

Another term -- STUDENT HOUSING -- may be acceptable to the commitee. A correlating proposal will be submitted to NFPA 101. A task group should be set up to develop a crosswalk between the IBC and NFPA 101. There can be significant out of step conditions between NFPA 101 and the IBC because many states will not adopt the latest version. For the convenience of the committee, selected passages from the 2015 NFPA are shown below. Admittedly, some consideration should be informed by loss history as to whether modification of the definition to reflect a new epoch in the education facilities industry would change the egress, sprinkler, fire separation, hazard classification, and other life safety canons.

Getting two standards to reflect a common understanding of the occupancy and use

classification and terminology is no small feat. It may take 3 - 6 years to harmonized them. We have to start somewhere. We prefer not to have to continue struggling with these definitions 6 years from now.

==========

2015 NFPA 101 Reference Material - *Selected* Passages to provide the committee insight into the current status of the Life Safety Code

3.3.64* Dormitory. A building or a space in a building in which group sleeping accommodations are provided for more than 16 persons who are not members of the same family in one room, or a series of closely associated rooms, under joint occupancy and single management, with or without meals, but without individual cooking facilities. (SAF-RES)

A.3.3.64 Dormitory. Rooms within dormitories intended for the use of individuals for combined living and sleeping purposes are guest rooms or guest suites. Examples of dormitories are college dormitories, fraternity and sorority houses, and military barracks.

6.1.8.1.4* Definition — Dormitory. A building or a space in a building in which group sleeping accommodations are provided for more than 16 persons who are not members of the same family in one room, or a series of closely associated rooms, under joint occupancy and single management, with or without meals, but without individual cooking facilities.

Chapter 14 New Educational Occupancies

14.1.3.4 Dormitory and Classrooms.

14.1.3.4.1 Any building used for both classroom and dormitory purposes shall comply with the applicable provisions of Chapter 28 in addition to complying with Chapter 14.

14.1.3.4.2 Where classroom and dormitory sections are not subject to simultaneous occupancy, the same egress capacity shall be permitted to serve both sections

15.1.3.4 Dormitory and Classrooms.

15.1.3.4.1 Any building used for both classroom and dormitory purposes shall comply with the applicable provisions of Chapter 29 in addition to complying with Chapter 15.

15.1.3.4.2 Where classroom and dormitory sections are not subject to simultaneous occupancy, the same egress capacity shall be permitted to serve both sections.

Chapter 22 New Detention and Correctional Occupancies

22.3.4.4.3* Smoke detectors shall not be required in Use Condition II open dormitories where staff is present within the dormitory whenever the dormitory is occupied.

A.22.3.4.4.3 An open dormitory is a dormitory that is arranged to allow staff to observe the entire dormitory area at one time

22.2.6.7 The maximum travel distance limitation of 22.2.6.6 shall be permitted to be increased to 100 ft (30 m) in open dormitories, provided that both of the following criteria are met:

(1) The enclosing walls of the dormitory space shall be of smoke-tight construction.

(2) Not less than two exit access doors remotely located from each other shall be provided where travel distance to the exit access door from any point within the dormitory exceeds 50 ft (15 m).

Chapter 28 New Hotels and Dormitories

28.1 General Requirements.
28.1.1 Application.
28.1.1.1 The requirements of this chapter shall apply to new buildings or portions thereof used as hotel or dormitory occupancies. (See 1.3.1.)
28.1.1.2 Administration. The provisions of Chapter 1, Administration, shall

apply.

28.1.1.3 General. The provisions of Chapter 4, General, shall apply.

28.1.1.4 Any dormitory divided into suites of rooms, with one or more bedrooms opening into a living room or study that has a door opening into a common corridor serving a number
of suites, shall be classified as an apartment building.

28.1.1.5 The term hotel, wherever used in this Code, shall include a hotel, an inn, a club, a motel, a bed and breakfast, or any other structure meeting the definition of hotel

28.1.4.2 Special Definitions. A list of special terms used in this chapter follows:
(1) Dormitory. See 3.3.64.
(2) Guest Room. See 3.3.132.
(3) Guest Suite. See 3.3.273.1.
(4) Hotel. See 3.3.145.

28.2.11.2 Lockups. Lockups in hotel and dormitory occupancies shall comply with the requirements of 22.4.5

28.3.7 Subdivision of Building Spaces. Buildings shall be subdivided in accordance with 28.3.7.1 or 28.3.7.2.
28.3.7.1 In buildings not protected throughout by an approved, supervised automatic sprinkler system, each hotel guest room, including guest suites, and dormitory room shall be separated from other guest rooms or dormitory rooms by
walls and floors constructed as fire barriers having a minimum 1-hour fire resistance rating.

Bibliography: FROM THE ASSOCIATION OF COLLEGE AND UNIVERSITY HOUSING OFFICERS INTERNATIONAL WEB SITE:
http://www.acuho-i.org/blog/articleid/3976/you-were-asking-residence-halls-vs-dormitories

A member recently asked this question. I thought it was interesting, and that the answer is too. Hopefully you feel the same. Does anyone know of any articles or studies as to when/why the lingo changed from dorm to res hall (to living center, etc)? As far as I know, there aren't any articles specifically on this (please post in the comments if you know otherwise). However, this is the answer I sent. Below I pasted the definitions from the online etymology dictionary, to which I'm referring here. (I love the Online Etymology Dictionary, by the way. It is fabulous.) Basically, "dormitory" comes from the word dormir which means to sleep or to become dormant. I've included some related definitions as well; cubicle (derived from a word that meant "to lie down, to bend oneself"), was the space in which someone slept in the dormitory. The word "cemetery" was derived from words related to dormitory, as it is a "sleeping place." The references to folding oneself into cubicles and death are likely the reason "dormitory" fell out of favor. Further below, there's the historical meanings for the words "residence" and "hall" which have much grander and more home-like pedigrees than that of "dormitory." These connotations are what universities and colleges refer to when explaining why those buildings are residence halls, not dormitories. (A number of examples can be found at the link.) I think the terms "living-learning" and similar, to specifically denote the educational aspects of residence halls, were used more commonly following the publishing of the Residential Nexus, which argued for a strong educational presence in the residence halls. As this is also a way to show the benefits of housing to students, parents and the administration, housing pros emphasize the home-like and educational aspects of housing, rather than the sleeping, dormant aspect.EDIT: Kevin Guidry's comment about an article in the Talking Stick sent me on a hunt through late-80s copies of the magazine. After flipping through many pages of--it must be said--ill-advised editorial, advertisement and fashion decisions, I found the article to which he was likely referring. Here it is: TalkingStick87 ResHallsDorms From the Online Etymology Dictionary: Dormitory: mid-15c., from L. dormitorium, from dormire "to sleep" (see dormant). Dorm: 1900, colloquial shortening of dormitory. Cubicle: late 15c., from L. cubiculum "bedroom," from cubare "to lie down," originally "bend oneself," from PIE

base *keu(b)- "to bend, turn." Obsolete from 16c., but revived 19c. for "dormitory sleeping compartment," sense of "any partitioned space" (such as a library carrel) is first recorded 1926. Cemetery:late 14c., from O.Fr. cimetiere "graveyard" (12c.), from L.L. coemeterium, from Gk. koimeterion "sleeping place, dormitory," from koimao "to put to sleep," keimai "I lie down," from PIE base *kei- "to lie, rest" (cf. Goth haims "village," O.E. ham "home, house, dwelling"); see home. Early Christian writers were the first to use it for "burial ground," though the Greek word also were anciently used of the sleep of death. Hall: O.E. heall "place covered by a roof, spacious roofed residence, temple," from P.Gmc. *khallo "to cover, hide" (cf. O.H.G. halla, Ger. halle, Du. hal, O.N. höll "hall;" O.E. hell, Goth. halja "hell"), from PIE base *kel- "to hide, conceal" (see cell). Sense of "entry, vestibule" evolved 17c., at a time when the doors opened onto the main room of a house. Older sense preserved in town hall, music hall, etc., and in university dormitory names. Hall of Fame first attested 1901, in ref. to Columbia College. Residence: c.1380, from M.L. residential, from L. residentem (nom. residens) "residing, dwelling," prp. of residere "reside" (see reside). Residential is attested from 1654, "serving as a residence;" meaning "having to do with housing" is from 1856.

For related information: http://standards.plantops.umich.edu/acuho-i/

Cost Impact: Will not increase the cost of construction
Greater granularity in the definition will likely reduce enforcement mis-match and mis-understanding and thereby reduce cost but it is difficult to count something that does not happen. It is safer to suggest that this change is likely to add to cost.

G7-15 : 202-DORMITORY -ANTHONY5279

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposed wording would result in a requirement that to be a dormitory you would have to have cooking facilities. Without cooking, a building wouldn't be a dormitory. This issue and trying to limit dormitories to being student housing leaves all other dormitories as undefined.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Maureen Traxler, Seattle Dept of Planning & Development, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

DORMITORY (STUDENT RESIDENCE FACILITY) A space in a building where group sleeping ~~and cooking~~ accommodations are provided in one room, or in a series of closely associated rooms, for persons not members of the same family group, under joint occupancy and single management, as in college dormitories (student residence facilities) or fraternity houses. Kitchen facilities can be included.

Commenter's Reason: As written, the original proposal includes cooking facilities as a required feature of dormitories. We are proposing that dormitories be allowed to have cooking facilities but not to require them. None of the citations from NFPA 101 included in the documentation for the proposal require cooking facilities, and some of them prohibit individual cooking facilities. For instance, Section 3.3.64 says that meals may be provided but individual cooking facilities are not allowed.

G7-15

G9-15
202

Proposed Change as Submitted

Proponent : Carl Baldassarra, P.E., FSFPA, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

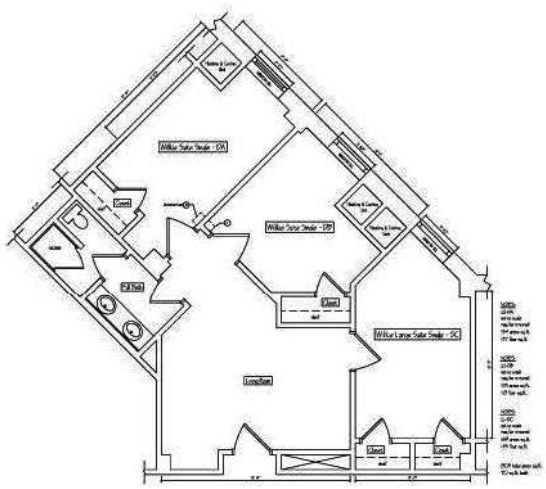
SECTION 202 DEFINITIONS

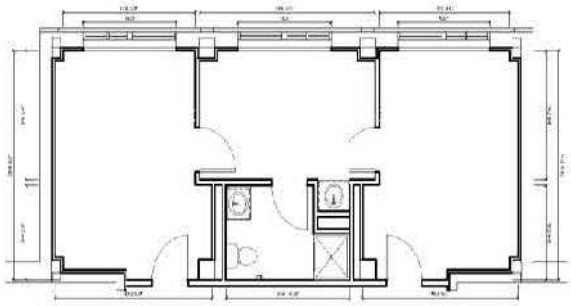
DWELLING UNIT. A single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

SLEEPING UNIT. A ~~room~~ single unit providing rooms or ~~space in which people sleep, which~~ spaces for one or more persons,which can also include permanent provisions for living, eating, sleeping, and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a *dwelling unit* are not sleeping units.

Reason: Some hotel rooms, assisted living and dormitories are designed as suites. In a hotel or assisted living space, common designs are one or two bedrooms a living space and private bath. In a dorm, common designs are two rooms with a private bath between; or three or four bedrooms with a living space and private bathrooms. These units act as a group similar to an apartment. Currently the definition for sleeping unit could be interpreted to be just a bedroom. When these bedrooms are combined into suites, they should be considered as one sleeping unit.

Figures for CTC Care proposal to to Section 420 (6B)





This is part of a group of proposals to address this style of design and group homes within single family residences. Changes are proposed for the definition for sleeping units, the Group classifications in Section 310.4 and 310.5, separation requirements in Section 420, and coordination with accessibility requirements in Section 1107. Proposals will be put forward as part of Group B for fire and smoke alarm systems. The proposals could work separately.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx

This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc

The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This will increase design options and is a clarification.

G9-15 : 202-DWELLING UNIT-BALDASSARRA4294

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The change provides clarity that sleepiong units are just a single room but can be a collection of rooms. The revision increases design options for sleeping rooms. There was concern that the revision could be read to not ever require a sleeping area in a sleeping room. Such is not the intent of the proposal.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Carl Baldassarra, P.E., FSFPE, representing Code Technologies Committee (CTC@iccsafe.org)

requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

SLEEPING UNIT. A single unit providing rooms or spaces for one or more ~~persons,which~~ persons in which people sleep. Additional rooms and spaces within the unit can also include permanent provisions for living, eating~~, sleeping,~~ and either sanitation or kitchen facilities but not both. Required egress from the unit is limited to access to a single exit or exit access doorway. Such rooms and spaces that are also part of a *dwelling unit* are not sleeping units.

Commenter's Reason: This revision is part of a package of changes that were all approved. However, this public comment is in response to floor comments heard during the committee hearing. This public comment accomplishes the following:

1. It now states the obvious option that a sleeping unit can be one room or multiple rooms.
2. It reinserts the original location of the term "sleeping" so that this cannot be any space, but more consistent with bedroom suites or two bedrooms with a shared bathroom.
3. It limits a sleeping unit to one exit. Requirements for single exit spaces are in Section 1006.3.2. This will stop the definition from being applicable to large areas on a single floor.

Public Comment 2:

Proponent : Maureen Traxler, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

SLEEPING UNIT. A single unit providing rooms or spaces for one or more ~~persons,which~~ persons,that includes permanent provisions for sleeping, and can ~~also~~ include ~~permanent~~ provisions for living, eating~~, sleeping~~, and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a *dwelling unit* are not sleeping units.

Commenter's Reason: The essence of a sleeping unit is that it's a place where people sleep. In the original proposal, provisions for sleeping are optional--this comment makes sleeping accommodations a mandatory feature of a sleeping unit.

Public Comment 3:

Proponent : Tony Crimi, representing International Firestop Council requests Disapprove.

Commenter's Reason: While this proposed change provides some clarity that sleeping units are not always just a single room, but can be a

collection of rooms, this proposal also introduces some unintended consequences and requires further study.

Firstly, as the Committee identified, the proposed language could be interpreted to not ever require a sleeping area in a sleeping room. The Committee reason clarified that such is not the intent of the proposal, however, that clarification of the intent is not in the IBC. The figures provided within the G9-15 proposal clearly represent the proponents intent of providing several rooms combined as a suite with a shared common space. However the unintended consequence of the proposed language would allow entire floor areas to be considered as a sleeping units, with no limitation on occupant load. This was clearly not the intent of this proposal.

Second, by adding the language "rooms" and not defining a "single unit" it is not hard to envision design professionals interpreting this language to include entire floor areas for hotel or motel floors, or dormitory floors. If so, this would create an unsafe condition by eliminating requirements for separation walls between these rooms, which was not intended by the proponents. While it could be interpreted that occupant loads could trigger the need for a rated corridor, this is not even implied within this definition.

Since occupant load limitations cannot be in a definition (since it is a requirement), this proposal should be Disapproved and brought back with a companion proposal to link these two critical elements.

Public Comment 4:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Disapprove.

Commenter's Reason: This proposal will provide confusion. Many dormitories do not provide for cooking accommodations. Are these rooms now something different? Based on the proposed definition, cooking must be provided to be a dormitory. In addition, fraternity houses is already in the R-2 category. While this may be an area of the code that needs work, we feel this approach will only add confusion.

G9-15

G12-15
202

Proposed Change as Submitted

Proponent : Victor Cuevas, representing City of Los Angeles (victor.cuevas@lacity.org)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

GRADE PLANE. A reference plane representing the average of finished ground level adjoining the building at *exterior walls*. ~~Where the finished ground level slopes away from the *exterior walls*, the~~ The reference plane ~~shall be~~ is established by averaging the highest and the lowest ~~points~~ elevation within the area between the exterior wall of the building or structure and the *lot line* or, where the *lot line* is more than 6 feet (1829 mm) from the building, between the building and a point 6 feet (1829 mm) from the building.

Reason: The current definition is confusing, not clear and lengthy.

Cost Impact: Will not increase the cost of construction
This code amendment will not increase the cost of construction. This amendment only seeks to simplify how the grade plane is regulated by reducing the amount of work it takes to find the grade plane elevation.

G12-15 : 202-GRADE PLANE-CUEVAS4577

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee concluded that the revision doesn't improve the determination of grade plane. They found the proposed language resulted in a more complex calculation. Further the change in definition can result in grade plane being at a different level than under the current definition - and as such it could affect the determination of which are stories above grade plane and therefore the height of the building.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Victor Cuevas, representing City of Los Angeles (victor.cuevas@lacity.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

SECTION 202 DEFINITIONS

GRADE PLANE. A reference plane representing the average of finished ground level adjoining the building at *exterior walls*. The reference plane is established by averaging the highest and the lowest elevation within the area between the exterior wall of the building or structure and the lot line or, where the *lot line* is more than 6 feet (1829 mm) from the building, between the building and a point 6 feet (1829 mm) from the building. Grade elevation at light-wells and stairways providing access for below grade spaces, including basements, shall be excluded when calculating the grade plane.

Commenter's Reason: Using an illustration and by further modifying the original amendment, will try to address the Committees comments.

G12-15

G15-15
202

Proposed Change as Submitted

Proponent : John Woestman, Kellen Company, representing Composite Lumber Manufacturers Association (CLMA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

PLASTIC COMPOSITE. A generic designation that refers to wood/plastic composites ~~and~~ , plastic lumber, and similar materials.

Delete without substitution:

~~**PLASTIC LUMBER.** A manufactured product made primarily of plastic materials (filled or unfilled) which is generally rectangular in cross-section.~~

~~**WOOD/PLASTIC COMPOSITE.** A composite material made primarily from wood or cellulose-based materials and plastic.~~

Reason: This proposal is intended to be clarifications and simplification of the requirements for plastic composites identified in this section.
The 2015 IBC included, for the first time, specific requirements for plastic composite deck boards, stair treads, and guard systems. The existing language was developed and finalized during the 2012 code development cycle for the IBC. The following year, the requirements in the IRC for these same products were revised, but the result is there are some differences between the IBC and the IRC. This code change proposal is an effort to move the language of the IBC to be in close alignment with the language of the IRC.
The revised definition would address plastic composite deck boards, stair treads, and guard systems made with such recycled material as carper fiber or material such as mineral-filled PVC.
The two definitions proposed for deletion are also not included / deleted in the IRC. The two deleted definitions are not needed as the terms are self-explanatory.

Cost Impact: Will not increase the cost of construction
No cost implications. No technical changes to the code requirements.

G15-15 : 202-PLASTIC COMPOSITE-WOESTMAN5568

Public Hearing Results

Committee Action: Approved as Modified

Modification:

SECTION 202

DEFINITIONS

PLASTIC LUMBER. A manufactured product made primarily of plastic materials (filled or unfilled) which is generally rectangular in cross section.

WOOD/PLASTIC COMPOSITE. A composite material made primarily from wood or cellulose-based materials and plastic.

Committee Reason: Although this is lacking a description of what "similar materials" might be the committee agreed that this was a good idea to include plastic composite deck boards, stair treads, and guard systems made with such recycled material as carper fiber or material such as mineral-filled PVC. The modification puts back the definitions of plastic lumber and wood/plastic composite as these definitions provide clarification to code users.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Julie Ruth, JRuth Code Consulting, representing American Architectural Manufacturers Association (julruth@aol.com) requests Disapprove.

Commenter's Reason: The net result of the committee's action on G15 is that the existing definitions of plastic lumber and wood/plastic composite were retained, while the existing definition of plastic composite was modified to include "and similar materials".

Although we are in agreement that the existing definitions of plastic lumber and wood/plastic composites do not address all the types of composite materials commonly used in building construction today. we do not think adding the phrase "and similar materials" without consideration of what other types of materials may be included in this definition are, and what their potential application may be, appropriately or adequately addresses the use of these new materials. In fact, we believe this change to the definition of "plastic composites" could create greater confusion in the enforcement of the IBC.

For example, there are several types of composites currently used in the fenestration industry that may be considered as falling within this new, modified definition. These include PVC framing, with or without fiberglass content, and glass and plastic composites used for glazing. Is the introduction of fiberglass, or glass in any other form, considered a "similar material"? Do the provisions of Section 2612 then apply to these materials?

We do believe the provisions of the IBC should be updated to address the numerous types of plastic composites currently in use by the construction industry. But we also believe the approved, modified proposal will create greater confusion rather than improving clarity. We urge disapproval of G15.

G17-15
202

Proposed Change as Submitted

Proponent : Marcelo Hirschler, GBH International, representing GBH International (gbhint@aol.com)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

LIGHT TRANSMITTING PLASTIC, APPROVED. Any light transmitting thermoplastic, thermosetting or reinforced thermosetting plastic material that conforms to combustibility classifications specified in the section applicable to the application and plastic type.

Reason: The IBC discusses approved light transmitting plastics in the sections associated with such plastics within Chapter 26 of the code. The concepts included in the definition refer to the classifications of Class CC1 and Class CC2 in section 2606.4 of the code. For all other uses there is nothing different about approving a plastic material than approving a wood material or any other type of material. Proposals are also being submitted to the relevant sections that reference "approved plastic" when they should reference "approved light transmitting plastic"

Cost Impact: Will not increase the cost of construction
This is simply a change in the definition of "plastic, approved" to "light transmitting plastic, approved" that would clarify the intent of the definition.

G17-15 : 202-PLASTIC, APPROVED-HIRSCHLER3513

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt that the definition of approved plastic needed to remain general in order to include all types of uses.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

~~**LIGHT TRANSMITTING PLASTIC, APPROVED.** Any light transmitting thermoplastic, thermosetting or reinforced thermosetting plastic material that conforms to combustibility classifications specified in the section applicable to the application and plastic type.~~

Commenter's Reason: It makes no sense to retain a definition on "approved plastic" since nowhere in the code is there any requirement for approving a plastic in general, just as there is no requirement for approving a wood in general or approving a metal in general. Chapter 26 has requirements for some specifc plastic materials when used in some specifc applications and that is as it should be. The word "approved" is defined by the IBC as "acceptable to the building official". Clearly the only action a building official would take if he/she is asked to "approve" a certain plastic is to see whether it complies with the code for the specifc application for which it is being submitted or, if it is presented as an "alternative materials" per section 104.11, whether a justification is presented for its use. The building official has no criteria for determining whether a plastic material is suitable to be approved in any other way. Therefore the definition of "approved plastic" should be eliminated just as there is no definition for approved wood or for approved metal.

G17-15

G19-15
202 (New)

Proposed Change as Submitted

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

SOFT CONTAINED PLAY EQUIPMENT STRUCTURE. A children's play structure containing one or more components where the user enters an enclosed play environment that utilizes pliable materials.

Reason: Section 424 discusses children's play structures and a definition is being proposed for that. Items 3, 6 and 7 of 424.2 also talks about "soft-contained play equipment structures", and a definition is being proposed for that as well, to identify that "soft-contained play equipment structures" are those that contain pliable materials and where the user is enclosed.

Cost Impact: Will not increase the cost of construction
Simply adds a definition.

G19-15 : 202-SOFT CONTAINED PLAY EQUIPMENT STRUCTURE (New)-HIRSCHLER4582

Public Hearing Results

Committee Action: **Approved as Modified**

Modification:

SECTION 202

DEFINITIONS

SOFT CONTAINED PLAY EQUIPMENT STRUCTURE. A children's play structure containing one or more components where the user enters a ~~an enclosed~~ play environment that utilizes pliable materials.

Committee Reason: This proposal adds a useful definition that clarifies the application of the code. The modification removed the word "enclosed" as it added confusion.

Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : Marsha Mazz, representing U.S. Access Board (mazz@access-board.gov) requests Approve as Submitted.

Commenter's Reason: An essential characteristic distinguishing this type of play structure from others that may contain pliable material is that users and play components are enclosed within the structure. Section 106 of the 2010 ADA Standards defines a "soft contained play structure" as "A play structure made up of one or more play components where the user enters a fully enclosed play environment that utilizes pliable materials, such as plastic, netting, or fabric." Approving the proposal as submitted will increase harmonization with the ADA Standards. .

G19-15

G20-15
202

Proposed Change as Submitted

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

SWIMMING POOL. Any structure intended to be used for swimming~~, recreational~~ or bathing ~~or wading~~ and that ~~contains water over 24 inches (610 mm) deep~~ is operated by an owner, lessee, operator, licensee or concessionaire, regardless of whether a fee is charged for use. This includes in-ground, aboveground and on-ground pools; hot tubs; spas and fixed-inplace wading pools that are designed and manufactured to be connected to a circulation system.

Reason: This definition is being amended to bring it in better alignment with the definitions and scope of the International Swimming Pool & Spa Code. A swimming pool is no longer defined with the limitation that it must contain water over 24 inches deep; rather, based on the scope of the ISPSC a key element is that they are designed and manufactured to be connected to a circulation system. Other edits were made to closely align with the definition of a Public Swimming Pool in the ISPSC. In this case allowance was made to incorporate spas, hot tubs, and other types of pools within this definition, with the limited requirements for these structures found in the IBC, but the reader can find detailed definitions of each in the ISPSC.

Bibliography: International Swimming Pool & Spa Code, 2015 edition, Sections 101.2 and 202

Cost Impact: Will not increase the cost of construction
This code change is simply aligning the verbiage with that found in another I-code, the ISPSC, due to the fact certain requirements remain in the IBC (Section 1110.4.13 for example) for swimming pools and spas. It does not make a change that would add requirements to a pool; therefore, no cost increase exists.

G20-15 : 202-SWIMMING POOL-HATFIELD5447

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The definition proposed is not consistent with that provided in the *International Swimming Pool and Spa Code.* In the ISPSC the connection to a circulation system appears to be key to what is regulated, where in this proposed definition it seems to only apply to the 'others' listed in the second sentence. The term recreation shouldn't be removed from the definition. The definition is unclear with respect to its application for site-built pools.

Individual Consideration Agenda

Public Comment 1:

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

SWIMMING POOL. ~~Any~~
A permanent or temporary structure that is intended to be used for swimming, bathing or ~~bathing~~ wading and that is ~~operated by an owner, lessee, operator, licensee or concessionaire, regardless of whether a fee is charged for use. This includes in-ground, aboveground and on-ground pools; hot tubs; spas and fixed-inplace wading pools that are~~ designed and manufactured to be connected to a circulation system. A swimming pool can be open to the public regardless of whether a fee is charged for its use or can be accessory to a residential setting where the pool is available only to the household and guests of the household.

Commenter's Reason: The committee noted the original proposal was not consistent with the *International Swimming Pool & Spa Code* definition of swimmng pool; however, the ISPSC does not have a definition for SWMMING POOL, but does have the following definitions:

PUBLIC SWIMMING POOL (Public Pool). A pool, other than a residential pool, that is intended to the used for swimming or bathing and is operated by an owner, lessee, operator, licensee or concessionaire, regardless of whether a fee is charged for use.

RESIDENTIAL SWIMMING POOL (Residential Pool). A pool intended for use which is accessory to a residential setting and available only to the household and its guests.

These ISPSC definitions are not very informative with respect to how the term SWMMING POOL is used in the IBC. However, under the Scope of the ISPSC, it provides the following:

101.2 Scope. The provisions of this code shall apply to the construction, alteration, movement, renovation, replacement, repair and maintenance of aquatic recreation facilities, pools and spas. The pools and spas covered by this code are either permanent or temporary, and shall be only those that are designed and manufactured to be connected to a circulation system and that are intended for swimming, bathing or wading.

This public comment therefore derives from the ISPSC Scope section and the Public and Residential pool definitions. It also addresses the committee's concern that in the ISPSC the connection to a circulation system appears to be key, but in the original proposal it seemed to only apply to those types of "swimming pools"

referenced in the second sentence. The public comment moves that language to the first sentence to assure that is applies to all "swimming pools." This definition captures all types of swimming pools that would fall under the ISPSC. Further, this public comment is consistent with the definition being offered in the IPC.

It is critical the definition be changed due to the fact the current definition found in the IBC is inconsistent and contrary to what is found in the ISPSC. A swimming pool is no longer defined with the limitation that it must contain water over 24 inches deep.

Public Comment 2:

Proponent : Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

~~**SWIMMING POOL.** Any structure intended to be used for swimming or bathing and that is operated by an owner, lessee, operator, licensee or concessionaire, regardless of whether a fee is charged for use. This includes in-ground, aboveground and on-ground pools; hot tubs; spas and fixed-inplace wading pools that are designed and manufactured to be connected to a circulation system.~~

Commenter's Reason: If the public comment to make changes to this definition does not satisfy the voting body, another alternative would be to remove the definition altogether. The fact that section 3109 of the IBC refers users to the ISPSC raises the question as to whether a definition for swimming pool is needed at all. To do nothing would leave the IBC with a definition of SWIMMING POOL that is contrary to what is in the ISPSC in terms of both scope and definitions. The current definition in the IBC would not recognize a wading pool that is 18 inches deep as a SWIMMING POOL due to the definition using the outdated limitation that it must contain water over 24 inches deep. Therefore, if the previous public comment that makes changes to the definition of SWIMMING POOL is not acceptable, voters are encouraged to simply remove the definition altogether.

G20-15

G22-15

304.2, [F] 307.2, 308.2, 310.2, 402.2, 404.1.1, 406.2, 408.1.1, 410.2, 411.2, 412.2, [F] 415.2, [F] 421.2, 423.2, 502.1, 702.1, 722.1.1, 802.1, 902.1, 1002.1, 1102.1, 1202.1, 1402.1, 1502.1, 1602, 1602.1, 1609.2, 1612.2, 1613.2, 1615.2, 1702.1, 1802.1, 2102.1, 2302.1, 2402.1, 2502.1, 2602.1, 3102.2, 3105.2, 3110.2

Proposed Change as Submitted

Proponent : Sarah Rice, Preview Group, representing Preview Group

2015 International Building Code

Revise as follows:

304.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

~~**AMBULATORY CARE FACILITY.**~~
~~**CLINIC, OUTPATIENT.**~~

[F] 307.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

(*The lists of terms in this and subsequent sections would be deleted.)*

308.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

310.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

402.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

404.1.1 Definition. ~~The following term is~~ Terms are defined in Chapter 2:

406.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~
408.1.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

410.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

411.2 Definition. ~~The following term is~~ Terms are defined in Chapter 2~~:~~

412.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~.~~
[F] 415.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

[F] 421.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

423.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~
502.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

702.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

722.1.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2:

802.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

902.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

1002.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

1102.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2:
1202.1 General. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

1402.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~
1502.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

1602.1 Definitions~~.~~ and notations ~~The following terms~~ Terms are defined in Chapter 2, The following notations are used in this chapter:

1609.2 Definitions. ~~For the purposes of Section 1609 and as used elsewhere in this code, the following terms~~ Terms are defined in Chapter 2~~.~~
1612.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

1613.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

1615.2 Definitions. ~~The following words and terms~~ Terms are defined in Chapter 2~~:~~

1702.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

1802.1 Definitions. ~~The following words and terms~~ Terms are defined in Chapter 2~~:~~

2102.1 General. ~~The following terms~~ Terms are defined in Chapter 2. The following notations are used in the chapter:

2302.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

2402.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~
2502.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

2602.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

3102.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

3105.2 Definition. ~~The following term is~~ Terms are defined in Chapter 2~~:~~

3110.2 Definition. ~~The following term is~~ Terms are defined in Chapter 2~~:~~

Reason: The intent of this proposal is to remove the definition list sections scattered about the code and the lists of defined terms included within each such section. Starting with the 2012 edition of the IBC all of the definitions were consolidated into Chapter 2. These sections are vestigages of historic organization of the code. In general when new terms are added to Chapter 2, they rarely find themselves being added to one of these lists. Terms can be removed from Chapter 2, but don't always get removed from these lists. Most of the ICC codes simply have a Chapter 2 of definitions, there are no lists scattered about the code. It is time to remove these lists. I see this as an editorial action. The proposal was not accepted by the Code Correlation Committee because of a concern that the language in each section implied that all terms were defined. I have revised that language to provide a simple reference for defined terms.
This proposal simply amends the sections to remove the lists and send the code users directly to Chapter 2. An alternative the committee might consider is to delete all of these sections (except the two that list notations). Deletion would force

renumber of the balance of the sections in these chapters.

In two sections, these lists also contain a list of scientific notations used in the chapter. Those notations are not found in Chapter 2. Thus the current text is incorrect and needs to be addressed. The proposal retains Section 1602 and 2102, but only for the listed notations.

Cost Impact: Will not increase the cost of construction
The proposal is purely editorial in nature and will have no impact on actual construction.

G22-15 : 304.2-RICE5794

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The proposal reduces redundancy in the code and simplifies the search for information. With each defined term italicized, the code user will go directly to Chapter 2 where the full definitions are found. The listings in front of the chapter provided no information for the code user. The intent of the committee was to change to the lists to a simple reference to Chapter 2 with the exception of those locations where the lists also included scientific notations. The notations would remain in the Chapters.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Maureen Traxler, Seattle Dept of Planning & Development, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

~~**304.2 Definitions.** Terms are defined in Chapter 2.~~

~~**[F] 307.2 Definitions.** Terms are defined in Chapter 2~~

~~**308.2 Definitions.** Terms are defined in Chapter 2~~

~~**310.2 Definitions.** Terms are defined in Chapter 2~~

~~**402.2 Definitions.** Terms are defined in Chapter 2~~

~~**404.1.1 Definition.** Terms are defined in Chapter 2:~~

~~**406.2 Definitions.** Terms are defined in Chapter 2~~

~~**408.1.1 Definitions.** Terms are defined in Chapter 2~~

~~**410.2 Definitions.** Terms are defined in Chapter 2~~

~~**411.2 Definition.** Terms are defined in Chapter 2~~

~~**412.2 Definitions.** Terms are defined in Chapter 2~~

~~**[F] 415.2 Definitions.** Terms are defined in Chapter 2~~

~~**[F] 421.2 Definitions.** Terms are defined in Chapter 2~~

~~**423.2 Definitions.** Terms are defined in Chapter 2~~

~~**SECTION 502 DEFINITIONS**~~

~~**502.1 Definitions.** Terms are defined in Chapter 2~~

~~**SECTION 702 DEFINITIONS**~~

~~**702.1 Definitions.** Terms are defined in Chapter 2~~

~~**722.1.1 Definitions.** Terms are defined in Chapter 2:~~

~~**SECTION 802 DEFINITIONS**~~

~~**802.1 Definitions.** Terms are defined in Chapter 2~~

~~**SECTION 902 DEFINITIONS**~~

~~**902.1 Definitions.** Terms are defined in Chapter 2~~

~~**SECTION 1002 DEFINITIONS**~~

~~**1002.1 Definitions.** Terms are defined in Chapter 2~~

~~**SECTION 1102 DEFINITIONS**~~

~~**1102.1 Definitions.** Terms are defined in Chapter 2:~~

~~**SECTION 1202 DEFINITIONS**~~

~~**1202.1 General.** Terms are defined in Chapter 2~~

~~**SECTION 1402 DEFINITIONS**~~

~~**1402.1 Definitions.** Terms are defined in Chapter 2~~

~~**SECTION 1502 DEFINITIONS**~~

~~**1502.1 Definitions.** Terms are defined in Chapter 2~~

SECTION 1602 ~~DEFINITIONS AND~~ NOTATIONS

~~**1609.2 Definitions.** Terms are defined in Chapter 2~~

~~**1612.2 Definitions.** Terms are defined in Chapter 2~~

~~**1615.2 Definitions.** Terms are defined in Chapter 2~~

~~**1613.2 Definitions.** Terms are defined in Chapter 2~~

~~**SECTION 1702 DEFINITIONS**~~

~~**1702.1 Definitions.** Terms are defined in Chapter 2~~

SECTION 1802 DEFINITIONS

~~**1802.1 Definitions.** Terms are defined in Chapter 2~~

SECTION 2102 ~~DEFINITIONS AND~~ NOTATIONS

2102.1 ~~General.~~ Notations ~~Terms are defined in Chapter 2.~~ The following notations are used in the chapter:

~~**SECTION 2202 DEFINITIONS**~~

~~**2202.1 Definitions.** The following terms are defined in Chapter 2:~~

~~**SECTION 2302 DEFINITIONS**~~

~~**2302.1 Definitions.** Terms are defined in Chapter 2~~

~~**SECTION 2402 DEFINITIONS**~~

~~**2402.1 Definitions.** Terms are defined in Chapter 2~~

~~**SECTION 2502 DEFINITIONS**~~

~~**2502.1 Definitions.** Terms are defined in Chapter 2~~

~~**SECTION 2602 DEFINITIONS**~~

~~**2602.1 Definitions.** Terms are defined in Chapter 2~~

~~**3102.2 Definitions.** Terms are defined in Chapter 2~~

~~**3105.2 Definition.** Terms are defined in Chapter 2~~

~~**3110.2 Definition.** Terms are defined in Chapter 2~~

Commenter's Reason: This comment deletes the definitions sections from all the chapters except Chapter 2. The original proposal deletes the lists of defined terms but leaves the statement "Terms are defined in Chapter 2." While we agree wholeheartedly with the spirit of the original proposal, we would like to take it to its logical conclusion and delete the entire sections. The text added in the original proposal doesn't add anything to the code; it's only purpose is to avoid renumbering the chapters. Everyone who has basic knowledge about the organization of the IBC, or who understands why terms are italicized knows that terms are defined in Chapter 2. For Sections 1602.1 and 2102.1, this comment lists the definitions that should be deleted in order to be very clear that the notations must remain in those sections.

Public Comment 2:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Disapprove.

Commenter's Reason: Definitions are an important part of applying the code. Some definitions apply generically throughout the code while others provide distinct guidance to application of a given chapter. The definitions listed at the beginning of each chapter are important clarifications on how the technical requirements of the chapter are to be applied. They are there to remind the user of the code of the importance of those definitions to the specific chapter and the user is encouraged to review them as the chapter is applied.
It is cumbersome and incorrect to expect the user of the code to read the definition

in Chapter 2 every time an italicized term, (defined), is encountered. That is why the chapter specific terms are listed. The committee decision should be overturned and the proposal should be disapproved by the membership, leaving the list of specific chapter definitions in each chapter for important guidance to code users.

G22-15

G23-15

302.1, 508.2.4, 508.3.3

Proposed Change as Submitted

Proponent : Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2015 International Building Code

Revise as follows:

302.1 General. Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed in this section. A room or space that is intended to be occupied at different times for different purposes shall comply with all of the requirements that are applicable to each of the purposes for which the room or space will be occupied. Occupied roof decks, other than private roof decks accessed from individual dwelling units in Group R-3 and Group R-2 occupancies, shall be classified based on the proposed use of the space. Structures with multiple occupancies or uses shall comply with Section 508. Where a structure is proposed for a purpose that is not specifically provided for in this code, such structure shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved.

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5.
2. Business (see Section 304): Group B.
3. Educational (see Section 305): Group E.
4. Factory and Industrial (see Section 306): Groups F-1 and F-2.
5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5.
6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4.
7. Mercantile (see Section 309): Group M.
8. Residential (see Section 310): Groups R-1, R-2, R-3 and R-4.
9. Storage (see Section 311): Groups S-1 and S-2.
10. Utility and Miscellaneous (see Section 312): Group U.

508.2.4 Separation of occupancies. No separation is required between accessory occupancies and the main occupancy.

Exceptions:

1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.4.
2. Group I-1, R-1, R-2 and R-3 *dwellingunits* and *sleeping units* shall be separated from other *dwelling* or *sleeping units* and from accessory occupancies contiguous to them in accordance with the requirements of Section 420.
3. Occupied roof decks classified as Group A and located on buildings constructed with three or more stories above grade plane and constructed of Type VB, IIIB and IIB construction shall be separated from all other occupancies in accordance with Section 508.4.

508.3.3 Separation. No separation is required between nonseparated occupancies.

Exceptions:

1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.4.
2. Group I-1, R-1, R-2 and R-3 *dwellingunits* and *sleeping units* shall be separated from other *dwelling* or *sleeping units* and from other occupancies contiguous to them in accordance with the requirements of Section 420.
3. <u>Occupied roof decks classified as Group A and located on buildings constructed with three or more stories above grade plane and constructed of Type VB, IIIB and IIB construction shall be separated from all other occupancies in accordance with Section 508.4.</u>

Reason: Modify Section 301 and add exception 3 to Section 508.2.4 and to Section 508.3.3 to require an occupancy separation between occupied roof decks classified as Group A and the building below.
Section 302.1 of the IBC requires that rooms or spaces be classified into one or more occupancies. In addition to determining allowable height and area requirements, as well fire protection requirements, establishing the occupancy of a space is required to determine means of egress requirements and fire alarm and occupant notification requirements. The IBC is not clear on how to address occupied roofs used for public assembly or other uses. Section 1004.5 requires compliance with the means of egress requirements of Ch 10 for certain outdoor areas that are enclosed and to and from which building occupants pass. The code is not clear what other occupancy specific requirements should be applicable due to the occupancy within the occupied roof deck.

The purpose of this code change is to require not less than one hour construction for the floor supporting occupied roof decks classified in Group A when required by Table 508.4 and when located on buildings of Type VB, IIIB, IIB construction. Table 508.4 requires at least a one hour occupancy separation for all occupancies other than F-2, S-2, U and E when adjacent to a Group A occupancy. Occupants on the occupied roof deck may not be at risk due to a fire event occurring on the roof deck, however they are unaware of the hazards in the building below which can be several stories below.

For example a Group A occupancy can be located on an occupied roof above a 74 ft high Type IIIB sprinkler protected building with two stories of type IA construction below 5 stories of Type IIIB construction. 500 occupants can be located on this occupied roof deck and are provided with two 2 hour interior exit stairways. Fire alarm activation of this non-high rise building will simultaneously cause the evacuation of all occupants in the building served by the two stairways and as a consequence queuing will occur. The occupancy separation will provide sufficient time for occupants on the roof to queue and enter the exit stairways and safely egress down the stairways.

This code changes provides balanced fire protection and does not rely only on sprinkler protection required in the building below by Section 903.2.1.6. The proposed code change only requires that the occupancy separation be required when the occupied roof deck is located above a building three or more stories above grade plane. Private roof decks associated with Group R-3 and individual units in R-2 are not classified as group A and will not be required to comply with the proposed code change.

Section 903.2.1.6 was added in the last code change cycle in code change # F121, F122, F124 -13 by Aon Fire Protection, Tennessee Code Development Committee and the ICC Fire Code Action Committee to require sprinkler protection below occupied roofs with more than 100 occupants for Group A-2 and 300 for all other Group A occupancies when not on open parking garages constructed of Type I or Type II. The

substantiation for Code Change # F124 that prevailed with modifications, and that was approved under public comment # 1, stated in part that "The occupants of the Group A occupancy, whether within the building or on the roof, are unaware of the hazards in the building and need to evacuate through the building."

Cost Impact: Will increase the cost of construction
This code change will increase the cost of construction due to required additional fire resistance of the roof ceiling assembly under the occupied roof deck and supporting construction. The majority of wood framed buildings are covered with gypsum sheathing board or exterior plaster wall finish so the cost impact is not significant when compared to the overall cost of construction.

G23-15 : 302.1-FATTAH5650

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee found the proposal confusing. The proponent hoped to remove his changes to Sections 508.2.4 and 508.3.3. This proposal has similar issues as the other proposals addressing the use of roofs. The text is somewhat circular in that if the roof deck is private and related to an R-2 dwelling unit would be unclassified. The committee later expressed encouragement to the proponents of all the occupied roof proposals to attempt to work together to create a solution for consideation at the public comment hearings.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association requests Approve as Submitted.

Commenter's Reason: Occupied roofs are mostly Group A and as such can have higher occupant loads. Classifying these areas will provide fire alarm signaling, proper exiting and sprinkler protection. As roof decks are utilized more, occupant loads will continue to get larger. This language is needed to regulate these areas.

Public Comment 2:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

302.1 General. Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed in this section. A room or space that is intended to be occupied at different times for different purposes shall comply with all of the requirements that are applicable to

each of the purposes for which the room or space will be occupied. Occupied roof decks, other than private roof decks directly accessed from– an individual dwelling ~~units in Group R-3 and Group R-2 occupancies,~~ unit or sleeping unit shall be classified based on the proposed use of the space. Structures with multiple occupancies or uses shall comply with Section 508. Where a structure is proposed for a purpose that is not specifically provided for in this code, such structure shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved.

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5.
2. Business (see Section 304): Group B.
3. Educational (see Section 305): Group E.
4. Factory and Industrial (see Section 306): Groups F-1 and F-2.
5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5.
6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4.
7. Mercantile (see Section 309): Group M.
8. Residential (see Section 310): Groups R-1, R-2, R-3 and R-4.
9. Storage (see Section 311): Groups S-1 and S-2.
10. Utility and Miscellaneous (see Section 312): Group U.

Commenter's Reason: The proposed code change seeks to clarify that occupied roof decks need to be classified. We have participated with a working group seeking to further clarify when an occupied roof is not required to comply with height and number of stories and submit this public comment as a fallback in the event the group effort fails. Classification of the occupancy triggers certain means of egress requirements and other occupancy specific requirements.
The committee disapproved both a floor modification and the original code change. The floor modification s being resubmitted for consideration by the membership.

The allowance for private roof decks directly accessed from a dwelling unit addresses the possibility that a large roof can have divided private decks related to a particular sleeping or dweling unit.

G23-15

G24-15

302.1, 503.1.4 (New)

Proposed Change as Submitted

Proponent : Stephen Thomas, representing Colorado Chapter (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

302.1 General. Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed in this section. A room or space that is intended to be occupied at different times for different purposes shall comply with all of the requirements that are applicable to each of the purposes for which the room or space will be occupied. Structures with multiple occupancies or uses shall comply with Section 508. Where a structure is proposed for a purpose that is not specifically provided for in this code, such structure shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved. Yards, patios, courts, occupied roofs and similar outdoor areas accessible to and usable by the building occupants shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved.

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5.
2. Business (see Section 304): Group B.
3. Educational (see Section 305): Group E.
4. Factory and Industrial (see Section 306): Groups F-1 and F-2.
5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5.
6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4.
7. Mercantile (see Section 309): Group M.
8. Residential (see Section 310): Groups R-1, R-2, R-3 and R-4.
9. Storage (see Section 311): Groups S-1 and S-2.
10. Utility and Miscellaneous (see Section 312): Group U.

Add new text as follows:

503.1.4 Occupied roofs Occupied roofs are not subject to the building height, number of stories and building area limitations of Sections 504 and 506.

Reason: Many buildings are being built or altered to create an occupied roof. The code is not clear as to the requirements for these "spaces". Chapter 10 takes care of the means of egress requirements. But, the rest of the code does not address these issues. Some areas are used as gathering spaces, dining areas, swimming pools, etc. The question has come up as to whether these uses are an "occupancy". Some jurisdictions classify them as occupancies and others do not. We were originally going to look at writing a much larger change that would state that they are not occupancies and provide exceptions throughout the code. However, the fact is that the code is an occupancy driven document. Therefore, we decided to use similar language in Section 302.1 combined with the language in Section 1004.5. An occupied roof would be classified to an occupany that it most resembles. For example, a roof off of a private office would be classified as a Group B occupancy.

However a roof above a restaurant would be classified as a Group A-2 occupancy. We have also provided language stating that the hieght and area requirements do not apply to occupied roofs. We conducted a survey of several building departments and code consultants and found that most respondents did not require an occupied roof to comply with the height and area provisions of the code. We are also not aware of any issues with the use of a roof as an occupied space.

This proposal provides users of the code some guidance and clarification on how to apply the provisions to an occupied roof.

Cost Impact: Will not increase the cost of construction
This change is a clarification to the code. It will not affect the overall cost of construction.

G24-15 : 302.1-THOMAS4437

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The testimony on this proposal and similar items clearly show that use of roofs needs to be clarified. The committee found the language of this proposal unclear and would still result in multiple interpretations. There was discomfort with the complete exemption allowed by the text of Section 503.1.4. Uses on roof must address issue of occupant safety as well as fire fighter access. Often planning/zoning regulations require open spaces and the solution is often the solution. The issue of whether an occupied roofs are considered a story or not. On a later proposal, the committee encouraged the proponents of the similar proposals try to get together to develop a solution for consideration at the public comment hearings.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Marshall Klein, representing National Multifamily Housing Council (makleinfpe@comcast.net) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION

SECTION 301 GENERAL

301.1 Scope. The provisions of this chapter shall control the classification of all buildings and structures as to use and occupancy. See Sections 903.2.1.6, 1004.5 and 1006.3 for occupied roofs.

1004.5 Outdoor areas. *Yards*, patios, *courts*, occupied roofs and similar outdoor areas accessible to and usable by the building occupants shall be provided with *means of egress* as required by this chapter. The *occupant load* of such outdoor areas shall be assigned by the *building official* in accordance with the anticipated use. Where outdoor areas are to be used by

persons in addition to the occupants of the building, and the path of egress travel from the outdoor areas passes through the building, *means of egress* requirements for the building shall be based on the sum of the *occupant loads* of the building plus the outdoor areas.

Exceptions:

1. Outdoor areas used exclusively for service of the building need only have one *means of egress*.
2. Both outdoor areas associated with Group R-3 and individual dwelling units of Group R-2.

Commenter's Reason: There were five (5) code proposals this code cycle (G23-15, G24-15, G131-15, G134-15 and G166-15) that attempted to address "occupied roofs", and all were recommended for disapproval by the General Code Development Committee because they all had diversified ways of addressing persons using the roof areas.

Under the 2015 IBC, there are already two (2) sections of the existing Code that adequately address occupied roofs by name, Section 903.2.1.6, **"Assembly occupancies on roofs"**, and Section 1006.3, **"Egress from stories or occupied roofs"**. A third section of Code, Section 1004.5, **"Outdoor areas"** , while not specifically stating "occupied roofs", would clearly be applicable to such roof areas based on its requirement to be applicable to "..and similar outdoor areas accesssible to and usable by the building occupants…".

Since it appears from the public testimony that there are many who were unaware of the existing requirements already in the 2015 IBC that address "occupied roofs", and the code proposal proponents and opponents appears to need another code cycle to potential address all the diversified views on this issue, this public comment is only attempting to place a pointer at the beginning of Chapter 3, "Use and Occupancy Classification", to guide code users to the existing code sections that address "occupied roofs".

The proposed revision to Section 1004.5 to add "…occupied roofs…" is based on the General Code Development Committee's reason statement for its disapproval of Code Proposal G131-15 that "…Adding 'occupied roofs' into Section 1004.5 makes sense and should be included in anything that is returned…".

In summary, this public comment is only 1) providing a pointer in the begining of Chapter 3 to the existing requirements in the Code for "occupied roofs" so they will not be missed, and 2) following through on the General Code Development Committee's request to further clarify that Section 1004.5, "Outdoor areas", would also be applicable to "occupied roofs".

Public Comment 2:

Proponent : Stephen Thomas, Colorado Code Consulting, LLC, representing Colorado Chapter ICC (sthomas@coloradocode.net); Ali Fattah, representing City of San Diego (afattah@sandiego.gov); Carl Wren, City of Austin, representing City of Austin, Texas (carl.wren@austintexas.gov); Gary Ehrlich, National Association of Home Builders , representing National Association of Home Builders (gehrlich@nahb.org); Jonathan Siu, City of Seattle Department of Planning & Development, representing City of Seattle Department of Planning & Development (jon.siu@seattle.gov); Lee Kranz, representing Washington Assoc of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov); Robert

Davidson, representing self (rjd@davidsoncodeconcepts.com); Steven Orlowski, BOMA, International, representing Building Owners and Managers Association, International (sorlowski@boma.org); Marshall Klein, representing National Multifamily Housing Council (makleinfpe@comcast.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

302.1 General. Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed in this section. A room or space that is intended to be occupied at different times for different purposes shall comply with all of the requirements that are applicable to each of the purposes for which the room or space will be occupied. Structures with multiple occupancies or uses shall comply with Section 508. Where a structure is proposed for a purpose that is not specifically provided for in this code, such structure shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved. ~~Yards, patios, courts, occupied~~ Occupied roofs ~~and similar outdoor areas accessible to and usable by the building occupants~~ shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved and shall comply with Section 503.1.4.

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5.
2. Business (see Section 304): Group B.
3. Educational (see Section 305): Group E.
4. Factory and Industrial (see Section 306): Groups F-1 and F-2.
5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5.
6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4.
7. Mercantile (see Section 309): Group M.
8. Residential (see Section 310): Groups R-1, R-2, R-3 and R-4.
9. Storage (see Section 311): Groups S-1 and S-2.
10. Utility and Miscellaneous (see Section 312): Group U.

503.1.4 Occupied roofs ~~Occupied~~ A roof level or portion thereof shall be permitted to be used as an occupied roof provided the occupancy of the roof is an occupancy that is permitted by Table 504.4 for the story immediately below the roof. The area of the occupied roofs ~~are~~ shall not ~~subject~~ be includeed in the building area as regulated by Section 506.

Exceptions:

1. The occupancy located on an occupied roof shall not be limited to the occupancies allowed on the story immediately below the roof where the building ~~height, number~~ is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and occupant notification in accordance with Section 907.5 is provided in the area of ~~stories~~ the occupied roof.
2. Assembly occupancies shall be permitted on roofs of open parking garages of Type I or Type II construction, in accordance with the exception to Section 903.2.1.6.

Elements or structures enclosing the occupied roof areas shall not extend more than 48 inches above the surface of the occupied roof.

Exception: Penthouses constructed in accordance with Section 1510.2 and ~~building area limitations of Sections 504~~ towers, domes, spires, and ~~506.~~ cupolas constructed in accordance with Section 1510.5

Commenter's Reason: There were several proposed changes to deal with occupied roofs submitted for this code cycle. All of them were disapproved by the General Committee. The proponents of all of those proposals have come together to develop one public comment to address this important issue. Building departments are seeing more and more roofs being occupied. The purpose of this public comment is to provide some direction to the code official in dealing with these uses. The code defines a story as "that portion of a building included between the upper surface of a floor and the upper surface of the floor or roof next above." While other proposals have been submitted to address the question whether or not an occupied roof would add to the number of stories, it is the opinion of the submitters that the code already addresses when a portion of the building is considered a story as indicated in the definition of Story. An uncovered roof deck is clearly not a story, because there is no floor or roof above.
The first portion of the change (Section 302.1) is to clarify that occupied roofs are required to be classified as an occupancy. The codes are so occupancy driven that you cannot determine what is needed when an roof is occupied unless you determine an occupancy classification. As an example, if a roof is used for gathering of people, it would be classified as a Group A-3. If it was a roof where patrons were drinking and dining, you would classify it as a Group A-2. An occupied roof outside a private office would be classified as a Group B. It is based on the use and the relative hazard of the use just like any other space in a building.

The second portion (Section 503.1.4) provides direction as to where the occupancies can be located. If the building is not provided with fire sprinklers, the use cannot be located on the roof unless it is permitted on the story directly below. For example, an occupied roof used for gathering of people on top of an office building of Type VB Construction without fire sprinklers would be limited to the roof of a one-story building. However, under the first exception, if the building is provide with fire sprinklers, there is no limitation as to where the occupied roof is permitted to be located. It is intended that the fire sprinklers will provide protection from the story below the occupied roof. The second exception in 503.1.4 correlates this section with the exception to Section 903.2.1.6, which allows assembly occupancies on the roof of Type I or II open parking garages without sprinklers on all the floors below.

During the discussions of the public comment, some contributors expressed the concern that if an uncovered occupied roof had walls or screens surrounding it, for all intents and purposes, the occupied roof area functions as a story from a firefighting perspective, even though it technically does not meet the definition of a story. The second paragraph of Section 503.1.4 is intended to reduce the height of any barriers or obstacles around the occupied roof area, so it does not function as a story. The exception is intended to allow abutting penthouses, towers, domes, spires, and cupolas that comply with Section 1510 to exceed the 48" height limit. Note that other rooftop structures in Section 1510 such as mechanical equipment screens and "bulkheads" are intentionally not included in the exception, since they were the source of the concern. The specified rooftop structures are generally limited in extent as related to the occupied roof, so their walls were not judged to be a major obstacle.

All other requirements in the code regarding occupied roofs will not change. They will still need a means of egress and an accessible route. The only purpose of this proposal is to clarify whether they have an occupancy classification and where they can be located.

G29-15
304.1

Proposed Change as Submitted

Proponent : Vickie Lovell, InterCode Incorporated, representing National Greenhouse Manufacturers Association (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

304.1 Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:
Airport traffic control towers
Ambulatory care facilities
Animal hospitals, kennels and pounds
Banks
Barber and beauty shops
Car wash
Civic administration
Clinic, outpatient
Dry cleaning and laundries: pick-up and delivery stations and self-service
Educational occupancies for students above the 12th grade
Electronic data processing
Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities not more than 2,500 square feet (232 m^2) in area.
<u>Greenhouses attached to structures classified as Group B</u>
Laboratories: testing and research
Motor vehicle showrooms
Post offices
Print shops
Professional services (architects, attorneys, dentists, physicians, engineers, etc.)
Radio and television stations
Telephone exchanges
Training and skill development not in a school or academic program (this shall include, but not be limited to, tutoring centers, martial arts studios, gymnastics and similar uses regardless of the ages served, and where not classified as a Group A occupancy).

Reason: Buildings made for human habitation maintain specific lighting, ventilation, heating and cooling levels that are suitable for the health and welfare of humans and their property, even though plants can co-exist in such environments. The main distinguishing feature between a greenhouse and other structures is that the environment in a greenhouse is designed and maintained exclusively for, and is essential for the aggressive propagation of plants by commercial growers. However, other activities can be conducted in a greenhouse, such as retail business, research by schools and universities, conservation, education, display by botanical institutions holding documented collections of specialty plants, and similar activities. Most

importantly, the unique environment must be carefully controlled with conditions specific to the plants in the greenhouse; otherwise, the plants will not survive.
The intent of this proposal is to clarify that greenhouses, typically considered to be Group U, are being used for educational occupancies for students above the 12th grade such as universities and schools, laboratories for research, and other professional settings. This proposal helps code users and enforcers to apply the requirements consistently and appropriately for greenhouses that have been determined to be in this occupancy group.

Greenhouses can be free standing or attached to a university classroom or laboratory for scientific studies. Access is limited to students and faculty - Use Group B or U.

Cost Impact: Will not increase the cost of construction
There is no cost impact related to this proposal because this code change only adds greenhouses to Group B.

G29-15 : 304.1-LOVELL4395

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The B-occupancy classification application is unclear. Compared with G27-13 where the 'green' purpose is identified, this proposal simply says its attached to a B occupancy. There is no limit as to ratio compared to the balance of the building. What would be a greenhouse which is stand alone - and isn't attached to anything - be classified.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Vickie Lovell, InterCode Incorporated, representing

National Greenhouse Manufacturers Association (vickie@intercodeinc.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

304.1 Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:
Airport traffic control towers
Ambulatory care facilities
Animal hospitals, kennels and pounds
Banks
Barber and beauty shops
Car wash
Civic administration
Clinic, outpatient
Dry cleaning and laundries: pick-up and delivery stations and self-service
Educational occupancies for students above the 12th grade
Electronic data processing
Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities not more than 2,500 square feet (232 m^2) in area.
Greenhouses ~~attached to structures classified as Group B~~ <u>used for education for students above the 12th grade</u>
Laboratories: testing and research
Motor vehicle showrooms
Post offices
Print shops
Professional services (architects, attorneys, dentists, physicians, engineers, etc.)
Radio and television stations
Telephone exchanges
Training and skill development not in a school or academic program (this shall include, but not be limited to, tutoring centers, martial arts studios, gymnastics and similar uses regardless of the ages served, and where not classified as a Group A occupancy).

Commenter's Reason: Although the committee members were generally favorable to the concept of assigning occupancy classifications to greenhouses where appropriate, they correctly identified a practical problem with the wording in the original proposal for Use Group B. The only intent of the proposal and this public comment is to clarify that greenhouses, typically considered to be Group U, are being used for educational occupancies for students above the 12th grade in universities and vocational schools. This public comment attempts to clarify that when a greenhouse is used as a teaching venue with students and teaching staff present, it should be classified as a Group B.

This proposal helps code users and enforcers to apply the requirements consistently and appropriately for greenhouses that have been determined to be in this occupancy group. Buildings made for human habitation maintain specific lighting, ventilation, and heating and cooling levels that are suitable for the health and welfare of humans and their property, even though plants can co-exist in such environments.

The main distinguishing feature between a greenhouse and other structures is that the environment in a greenhouse is designed and maintained exclusively for, and is essential for the aggressive propagation of plants by commercial growers. However, other activities can be conducted in a greenhouse such as retail business, research by schools and universities, conservation, education, display by botanical institutions holding documented collections of specialty plants, and similar activities. Most importantly, the unique environment must be carefully controlled with conditions specific to the plants in the greenhouse; otherwise, the plants will not survive.

The proposal and subsequent public comment is part of a bigger cache of proposals intended to distinguish the various uses of greenhouses above and beyond the protection, cultivation and maintenance of plants:

G13
G27
G29
G30
G31
G48

Cost Impact: Will not increase the cost of construction.
There is no cost impact related to this proposal because this code change only adds greenhouses to Group B.

G29-15

G30-15

305.1.2 (New)

Proposed Change as Submitted

Proponent : Vickie Lovell, InterCode Incorporated, representing National Greenhouse Manufacturers Association (vickie@intercodeinc.com)

2015 International Building Code

Add new text as follows:

305.1.2 **Greenhouses** Greenhouses attached to structures classified as Group E occupancies shall be classified as Group E.

Reason: Buildings made for human habitation maintain specific lighting, ventilation, heating and cooling levels that are suitable for the health and welfare of humans and their property, even though plants can co-exist in such environments. The main distinguishing feature between a greenhouse and other structures is that the environment in a greenhouse is designed and maintained exclusively for, and is essential for the aggressive propagation of plants by commercial growers. However, other activities can be conducted in a greenhouse, such as retail business, research by schools and universities, conservation, education, display by botanical institutions holding documented collections of specialty plants, and similar activities. Most importantly, the unique environment must be carefully controlled with conditions specific to the plants in the greenhouse; otherwise, the plants will not survive.
The intent of this proposal is to clarify that greenhouses, while typically determined to be Group U, are being used for educational occupancies for students in private and public schools, laboratories, and other educational venues. This proposal helps code users and enforcers to consistently apply the requirements appropriately for greenhouses determined to be in this occupancy group.

Cost Impact: Will not increase the cost of construction
There is no cost impact related to this proposal because this code change only adds greenhouses to Group E.

G30-15 : 305.1.2 (New)-LOVELL5092

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Similar to G29-15, this proposal doesn't again specify a use but simply that it is attached to a building that is classified as Group E. This doesn't provide any clarity.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Vickie Lovell, InterCode Incorporated, representing National Greenhouse Manufacturers Association (vickie@intercodeinc.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

305.1.2 Greenhouses Greenhouses ~~attached to structures classified as Group E occupancies shall be classified as Group E~~ used for educational purposes through the 12th grade.

Commenter's Reason: Buildings made for human habitation maintain specific lighting, ventilation, and heating and cooling levels that are suitable for the health and welfare of humans and their property, even though plants can co-exist in such environments. The main distinguishing feature between a greenhouse and other structures is that the environment in a greenhouse is designed and maintained exclusively for, and is essential for the aggressive propagation of plants by commercial growers. However, other activities can be conducted in a greenhouse such as retail business, research by schools and universities, conservation, education, display by botanical institutions holding documented collections of specialty plants, and similar activities. Most importantly, the unique environment must be carefully controlled with conditions specific to the plants in the greenhouse; otherwise, the plants will not survive.

The intent of this proposal is to clarify that greenhouses, while typically determined to be Group U, are being used for educational occupancies for students in private and public schools, and other educational venues. The proposal and subsequent public comment is part of a bigger cache of proposals intended to distinguish the various uses of greenhouses above and beyond the protection, cultivation and maintenance of plants:

G13
G27
G29
G30
G31
G48

Although the committee members were generally favorable to the concept of assigning occupancy classifications to greenhouses when appropriate, they correctly identified a practical problem in the original proposal with the wording used to describe Use Group E.

This public comment attempts to clarify that when the greenhouse is used as a teaching venue, or for testing and research, it should be classified as a Group E. Whether or not the greenhouse is attached to the rest of the Group E venue is of little consequence in this context.

This proposal helps code users and enforcers to apply the requirements consistently and appropriately for greenhouses that have been determined to be in this occupancy group.

Cost Impact: Will not increase the cost of construction.
There is no cost impact related to this proposal because this code change only adds greenhouses to Group E.

G33-15

308.3.4, 308.4.2, 310.5.1, [F] 903.2.8.4 (IFC 903.2.8.4)

Proposed Change as Submitted

Proponent : Carl Baldassarra, P.E., FSFPA, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

308.3.4 Five or fewer persons receiving custodial care. A facility with five or fewer persons receiving custodial care shall be classified as Group R-3~~ or shall comply with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*~~.

308.4.2 Five or fewer persons receiving medical care. A facility with five or fewer persons receiving medical care shall be classified as Group R-3 ~~or shall comply with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*~~.

310.5.1 Care facilities ~~within a dwelling~~. ~~Care facilities for~~ A dwelling with five or fewer persons receiving custodial or medical care~~ that are within a single-family dwelling are~~ , shall be permitted to ~~comply~~ be constructed in accordance with the *International Residential Code*~~provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*~~.

2015 International Fire Code

Revise as follows:

903.2.8.4 Care facilities. An *automatic sprinkler system* installed in accordance with Section 903.3.1.3 shall be permitted in ~~care facilities~~ a dwelling with five or fewer individuals ~~in a single-family dwelling.~~ providing custodial or medical care.

Reason: The intent of this proposal is to coordinate the language between sections and to let the IRC requirements determine the sprinkler regulations. The provisions for 5 or fewer persons receiving care under Group I-1 and I-2 (308.3.4, 308.4.2) is strictly a reference to the requirements in Group R-3 (310.5.1). If a care facility is not within a dwelling, it is a Group R-3. If care is provided for individuals within a home, they can follow the IRC for construction requirements.

The dwelling with 5 or fewer persons receiving care can literally be single family homes or small group home. The Group R-4 facilities were developed to be consistent with the Fair Housing Act. Over time, changes have been made to the codes that have resulted in jurisdictions being subject to discrimination lawsuits under the Fair Housing Act.

The IRC has a sprinkler requirement, so these homes should be permitted to be constructed in accordance with the IRC. Forcing a facility to drag a sprinkler system with them, just in case a jurisdiction may decide to not require single family home to sprinkler, is not good code practice.

NFPA 13D sprinkler systems are required for care facilities with 5 or fewer

residents (Section 903.2.8.4) that decide to construct in the IBC. The proposed wording is for consistency in the language in Chapter 3.

The change to IFC 903.2.8.4 is strictly consistency in terminology and is not a technical change.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
Sprinklers requirements for homes are addressed in the IRC. Working within the family of codes, this is not a change in requirements.

G33-15 : 308.3.4-BALDASSARRA4268

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The provisions assure that if these occupancies are built under the auspices of the *International Residential Code* that they are protected with an automatic sprinkler system. If the text is removed, that assurance is lost. With many states and localities removing sprinkler requirements when the IRC is adopted, this language in the IBC assures sprinkler protection.

Assembly Motion: As Submitted
Online Vote Results: Failed
Support: 23.27% (104) Oppose: 76.73% (343)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Carl Baldassarra, P.E., FSFPE, representing Code Technologies Committee (CTC@iccsafe.org)

requests Approve as Submitted.

Commenter's Reason: Much of the testimony against this proposal was regarding licensed facilities or businesses that take care of the elderly. This change is only dealing with facilities with 5 or fewer residents. They are allowed to use the IRC because this could literally be a single family home with someone who needed care. States do not require facilities with 5 or fewer to be licensed facilities. Also, the current text does not require this to be a business.

The committee stated that these facilities should be sprinklered. The IRC requires sprinklers. Requirements should not be buried in the IBC that is only to specifically over ride a jurisdiction possibly modifying the IRC. If the membership does not want to allow for anyone who needs custodial care to live in a single family home they

should change the requirement to keep these facilities within the IBC and not allow them to use the IRC as an option for construction.

Public Comment 2:

Proponent : Stephen Thomas, Colorado Code Consulting, LLC, representing International Association of Building Officials (IABO) (sthomas@coloradocode.net) requests Approve as Submitted.

Commenter's Reason: Several local building officials have been sued for enforcing the current language in the code as it is now written. The lawsuits and threats of legal action are being filed under the Americans with Disabilities Act (ADA). The argument is that this creates an unequal requirement on buildings just because the occupants have a disability. If you require sprinklers in a home that has people with disabilities, but not a home where people without disabilities, you are violating the ADA. If you require fire sprinklers in homes whether they have people with disabilities or not, you are not in violation. You are providing equal enforcement. We should not have a provision in the code where we place the building official and local authority in a position of being sued under a federal law.
We do not need language in the IBC to provide fire sprinklers if the building is constructed under the IRC. The IRC already requires the fire sprinklers. One of the arguments against this proposal is that jurisdictions delete the fire sprinklers as part of their adoption of the code. Past actions of the code committees and the membership have confirmed that we cannot base a decision on a code change that is dependent on what amendments are made at the local level. We need to consider the code change based on the current language in the codes.

In addition, NFPA 101 does not require fire sprinklers in these types of facilities is they are converted facilities; they serve eight or less residents and the occupants are able to move to a point of safety within 3 minutes. The majority of the facilities that are covered by the code are converted units. The residents are generally able to evacuate on their own.

There is also no clarification on who is providing the medical or custodial care in these facilities. It could be read that if a family member has a disability and the family uses a visiting nurse service to provide the medical or custodial care, the code would require that the dwelling unit be provided with fire sprinklers. We do not believe that this is the intent of this section, but that is what it says. If I have one person receiving custodial or medical care, that is less than 5 and would require me to comply with these sections. If that is the case, the IRC requirements would be met.

G33-15

G35-15

202 (New), 308.2, 308.5, 308.5.6 (New)

Proposed Change as Submitted

Proponent : Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

LOCKUP FACILITY Buildings containing holding cells, rooms or areas where occupants are restrained or detained.

Revise as follows:

308.2 Definitions. The following terms are defined in Chapter 2:
24-HOUR BASIS.
CUSTODIAL CARE.
DETOXIFICATION FACILITIES.
FOSTER CARE FACILITIES.
HOSPITALS AND PSYCHIATRIC HOSPITALS.
LOCKUP FACILITY
INCAPABLE OF SELF-PRESERVATION.
MEDICAL CARE.
NURSING HOMES.

308.5 Institutional Group I-3. Institutional Group I-3 occupancy shall include all buildings and structures or portions thereof that are inhabited by ~~more than five persons~~ people who are under restraint or security. A Group I-3 facility is occupied by persons who are generally *incapable of self-preservation* due to security measures not under the occupants' control. This group shall include, but not be limited to, the following:
Correctional centers
Detention centers Jails
Lockup facility
Prerelease centers
Prisons
Reformatories

Buildings of Group I-3 shall be classified as one of the occupancy conditions specified in Sections 308.5.1 through 308.5.5 (see Section 408.1).

Add new text as follows:

308.5.6 Lockup facilities. A lockup facility for five or fewer persons shall be classified as a Group B occupancy or as part of the primary occupancy of the building. Such facilties shall comply with all of the following:

1. The area containing a lockup facility shall be separated from other rooms, spaces or areas by smoke barrier complying with Section 709.
2. The building containing a lockup facility shall be protected with an automatic fire sprinkler system complying with Section 903.

3. The area containing a lockup facility shall be provided with an automatic smoke detection system installed in accordance with Section 907.
4. There shall be not more than one lock-up facility within a building.
5. The restraint of individuals within the lock-up facility shall be for less than 24 hours.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
This code proposal adds a definition for lockup facilities that is needed in the Code that clarifies the use occupancies for buildings/spaces that contain five or less occupants under restraint or detained.

This code proposal includes the revision of Section 308.5 and the addition of Section 308.5.6. The revision removes more than five persons, and adds buildings and structures containing a room, holding cell or cellblock used to place persons under restraint or security. The new section adds lockup facilities and also clarifies that an approved smoke barrier complying with Section 709 be provided, and also fire sprinkler and smoke detectors be installed. There would be no more than one lockup facility within a building and the restraint of individuals is for less than 24 hours.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction of rooms or spaces used to restrain or detain occupants.

G35-15 : 308.5.6 (New)-KULIK4893

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee found that the proposal, while a good attempt to address the issue, left too many unanswered concerns. There was concern that the requirements would be too onorous when applied to a smaller building, or perhaps for a temporary holding room located in a mall or a school. On the other hand a large court building might have a small lock up next to each of 12 court rooms. Such would be prohibited by the limitation of one such lockup per builidng. In addition, the change in Section 308.5 would leave unanswered what was an I-3 with 5 or fewer occupants which was not a lockup facility.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, Chair, representing ICC Building Code Action Committee and Adolf Zubai, Chair, representing International Association of Fire Chiefs, Fire & Life Safety Section

requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

~~**LOCKUP**~~ **TEMPORARY DETENTION FACILITY** ~~Buildings containing holding~~ Holding cells, rooms or areas where occupants are restrained or detained for a duration of less than 24 hours.

308.2 Definitions. The following terms are defined in Chapter 2:

24-HOUR BASIS.
CUSTODIAL CARE.
DETOXIFICATION FACILITIES.
FOSTER CARE FACILITIES.
HOSPITALS AND PSYCHIATRIC HOSPITALS.
~~**LOCKUP FACILITY**~~
INCAPABLE OF SELF-PRESERVATION.
MEDICAL CARE.
NURSING HOMES.
TEMPORARY DETENTION FACILITY

308.5 Institutional Group I-3. Institutional Group I-3 occupancy shall include all buildings and structures or portions thereof that are inhabited by people who are under restraint or security. A Group I-3 facility is occupied by persons who are generally *incapable of self-preservation* due to security measures not under the occupants' control. This group shall include, but not be limited to, the following:
Correctional centers
Detention centers Jails
~~Lockup facility~~
Prerelease centers
Prisons
Reformatories
Temporary Detention Facilities

Buildings of Group I-3 shall be classified as one of the occupancy conditions specified in Sections 308.5.1 through ~~308.5.5~~ 308.5.6 (see Section 408.1).

308.5.6 ~~Lockup~~ Condition 6 temporary detentionfacilities. ~~A lockup facility for five or fewer persons~~ This occupancy shall ~~be classified as a Group B occupancy or as part of the primary occupancy of the building. Such facilties shall comply~~ include temporary detention facilities complying with all of the following:

1. Condition 6 temporary detention facilities shall be permitted in other than Group I-1 or I-2 occupancies
~~1.~~2. The ~~area containing a lockup~~ Condition 6 temporary detention facility shall be separated from other rooms, spaces or areas by smoke ~~barrier~~ barriers complying with Section 709.
~~2.~~3. The building containing a ~~lockup~~ Condition 6 temporary detention facility shall be protected with an automatic fire sprinkler system

complying with Section 903.
~~3~~.4, The ~~area containing a lockup~~ Condition 6 temporary detention facility shall be provided with an automatic smoke detection system installed in accordance with Section 907.
~~4. There shall be not more than one lock-up facility within a building.~~
~~5~~ 5. The restraint of individuals within the ~~lock-up~~ Condition 6 temporary detention facility shall be for less than 24 hours.
6. Not more than five persons shall be detained in the Condition 6 temporary detention facility at any one time.
7. The Condition 6 temporary detention facility shall be under constant supervision by a responsible person with the ability to release any persons confined within the facility.
8. The Condition 6 temporary detention facility shall be permitted to be classified as part of the primary occupancy of the building.

Commenter's Reason: Kulik: This Public Comment is designed to clarify this proposal for temporary detention facilities.
To address committee concerns and testimony from the floor the proposal has been modified to eliminate the Group B classification. This change coupled with identifying the Temporary Detention parameters as an I-3 Condition 6 occupancy eliminates the question on what a small facility, 5 or less restrained individuals, would be. It would be an I-3 unless the temporary detention facility option was taken as permitted and the requirements of proposed Section 308.5.6 are complied with. The limitation on one temporary detention facility within a building has been eliminated to address situations such as court houses where each courtroom may have a temporary detention facility. The name of the use has been modified to more clearly reflect the temporary nature of the restraint.

Zubia: This Public Comment is designed to clarify this proposal for temporary detention facilities.

The original proposal contained internal conflicts. First it stated that a temporary detention facility was a Group I-3, then it stated they were Group B. This public comment continues with philosophy that anywhere a person's liberties are restricted should be considered a Group I-3. Therefore, this proposal adds Condition 6 as another level of detention under Group I-3.

Initially, the title of this use is revised to temporary detention facility. This title more accurately describes the use of these areas. These areas must be considered temporary since stay longer than 24 hours is not permitted.

Also, the use has been included as another Condition under Group I-3. Group I-3 currently offers 5 conditions for various levels of application and restraint. The temporary detention facility becomes Condition 6.

Requirements for Condition 6 temporary detention facilities include that the facility must be located in a sprinklered building, protected with a smoke detection system, separated from other portions of the building, contain no more than 5 persons, and have constant supervision.

These facilities can be found in a typical mall building, where security staff will detain someone until the police department arrives to take custody and transport. These provisions allow this situation to occur while providing a safe situation for the restrained persons. This proposal also allows the construction of the Group I-3 Condition 6 to meet the requirements for construction of the main building itself rather than Group I-3 construction for the room of restraint.

The limitation to only one Group I-3 Condition 6 in a building is deleted. Many larger facilities can have a need for different locations for temporary detention facilities. All of the provisions will apply in all locations.

G40-15
310.5, 310.5.2
Proposed Change as Submitted

Proponent : Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

310.5 Residential Group R-3. Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:
Buildings that do not contain more than two *dwelling units*
Boarding houses (nontransient) with 16 or fewer occupants
Boarding houses (*transient*) with 10 or fewer occupants
Care facilities that provide accommodations for five or fewer persons receiving care
Congregate living facilities (nontransient) with 16 or fewer occupants
Congregate living facilities (*transient*) with 10 or fewer occupants
Owner-occupied*Lodging houses (transient)* with five or fewer *guest rooms* and 10 or fewer occupants

310.5.2 Lodging houses. Owner-occupied *lodging houses* with five or fewer *guest rooms and* 10 or fewer occupants shall be permitted to be constructed in accordance with the *International Residential Code*.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
The purpose of this code change is to provide for further clarification of the correlation between the International Residential Code and the International Building Code. During the 2009/2010 code cycle, an exemption to IRC Section R101.2 was approved allowing owner-occupied lodging houses with five or fewer guestrooms to be constructed under the IRC. However, a correlating provision was not added to the IBC, resulting in a conflict between the two codes and a potential for confusion in enforcement. Last cycle language was added to the IBC at the final action hearing to correlate the IBC with the IRC.

This proposal further refines the added language by inserting "owner occupied" which is a qualifier already in the IRC; by clarifying that the lodging use is of a "transient" nature consistent with other Group R-3 use language. It further ties in the 10 or fewer occupant load criteria which is also intended for consistency with the current Board house language, a lodging house is a form of a boarding house.

Cost Impact: Will not increase the cost of construction
This proposal will decrease the cost of construction by further clarifying that certain

owner-occupied lodging houses can be constructed under the IRC rather than the IBC and by providing increased consistency of language and application.

G40-15 : 310.5-KULIK5031

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee found the dual limit confusing. What is the occupancy if there are 4 guest rooms but 12 occupants? There was reluctance to add 'owner occupied' to the code, even though it is consistent with the IRC.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

310.5 Residential Group R-3. Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:
Buildings that do not contain more than two *dwelling units*
Boarding houses (nontransient) with 16 or fewer occupants
Boarding houses (*transient*) with 10 or fewer occupants
Care facilities that provide accommodations for five or fewer persons receiving care
Congregate living facilities (nontransient) with 16 or fewer occupants
Congregate living facilities (*transient*) with 10 or fewer occupants
~~Owner-occupied~~*Lodging houses (transient)* with five or fewer *guest rooms* and 10 or fewer occupants

310.5.2 Lodging houses. Owner-occupied *lodging houses* with five or fewer *guest rooms and* 10 or fewer total occupants shall be permitted to be constructed in accordance with the *International Residential Code*.

Commenter's Reason: The purpose of this public comment is to address the committee comments as reflected in the ROCAH. The committee vote to disapprove the proposal was 8-6, a close vote which indicates the proposal had support from a number of the committee members.
Some committee members were hesitant about combining the number of guest rooms and number of occupants in one provision. Both elements are necessary in order to coordinate with the IRC while still maintaining internal consistency with the IBC. Occupant loads are not calculated in the IRC, hence the need to limit owner-occupied lodging houses by number of guest rooms to correlate with the existing exemption in the IRC. However, since there is no limit in either the IRC or IBC on the number of occupants in a guestroom, an overall limit on the number of occupants in the lodging house is needed to maintain consistency with the maximum number of

occupants for other similar Group R-3 occupancies such as boarding houses and congregate living facilities. By adding "total", the public comment further clarifies that the maximum occupant load includes the owner and his family in addition to the occupants of the guest rooms.

The committee was also hesitant about adding the term "owner occupied" to Section 310.5, though it appears in Section 310.5.2 and in the IRC. The committee was correct that this creates an unintended consequence. If the Group R-3 classification is limited to owner-occupied houses, other lodging houses become Group R-1 or R-2 regardless of the number of occupants. This was not the BCAC's intent, and this public comment deletes the term "owner-occupied" from the listing in 310.5. The term is retained in 310.5.2 to correlate with the IRC for the specific case where the owner is present. Other lodging houses would still be able to be classified a Group R-3 occupancy.

G40-15

G41-15
310.5.2

Proposed Change as Submitted

Proponent : Anthony Apfelbeck, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Building Code

Revise as follows:

310.5.2 Lodging houses. Owner-occupied *lodging houses* with five or fewer *guest rooms* shall be permitted to be constructed in accordance with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*.

Reason: The base requirements of the IRC and the IBC require fire sprinkler protection for all Group R occupancies and for all One-and two-family dwelling and townhomes. This code change proposal clarifies fire sprinkler protection is still required for these uses regardless of an application under the IRC or IBC. This is similar language to that used above in 310.5.1 and other sections of the code that permit a use under the IRC but require fire sprinkler protection for occupant life safety protection under the base code requirements.

Cost Impact: Will not increase the cost of construction
As the base IRC and the IBC already require fire sprinkler protection for this type of occupancy there is no cost when a jurisdiction adopts the IRC and IBC in unamended format.

G41-15 : 310.5.2-APFELBECK3859

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee concluded that the pointer to the IRC doesn't need to say sprinklers are required when the IRC requires the provisions of sprinklers. While testimony focused on the change of occupancy and what is needed when such change occurs. Discussion of change of occupancy is addressing the wrong code.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org) requests Approve as Submitted.

Commenter's Reason: Lodging houses are a sprinklered occupancy in the IBC and when then IBC permits an occupancy to be constructed in the IRC, the fire sprinkler

stipulation is noted specifically in the IBC, as indicated in Sections 310.5.1 and 308.3.4. This is especially valid, when the user of the IBC, gets the permission to use the IRC in Chaper 3 (310.5.2) of the IBC. The user could easily, but incorrectly assume that the requirements of Chapter 9, specifically, Section 903.2.8.1 would not apply since the code path in the IBC stopped at Chapter 3. Noting the sprinkler requirements in Chapter 3 is consistant with other occupancies permitted to go to the IRC, such as Sections 310.5.1 and 308.3.4.
The 2012 IRC, by F28-09/10 Part II, permitted lodging house occupancies with five or fewer guestrooms, but only when equipped with a fire sprinkler system. The scope of the IRC should reflect in the Chapter 3 of the IBC to not confuse users of the code, especially on life safety systems.

Public Comment 2:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: The proposed change is needed for correlation with IRC Section 101.2, which only allows owner-occupied lodging houses with 5 or fewer guestrooms to be built under the IRC when fire sprinklers are provided. Exception 2 of IRC Section 101.2 states:
"2. Owner-occupied lodging houses with five or fewer guestrooms shall be permitted to be constructed in accordance with the International Residential Code for One- and Two-family Dwellings where equipped with a fire sprinkler system in accordance with Section P2904."
It is important to point out that prior to the 2012 editions of the I-codes, there was NO allowance to build lodging houses under the IRC. The allowance was added by Proposal G28-09/10 with the specific provision that the IRC would retain the IBC's sprinkler requirement. By approving this proposal, it will be clear in the IBC that no one should expect to use the IRC for a lodging house unless it has fire sprinklers (just as is required for these uses under the IBC). Lodging houses are commercial businesses serving transient patrons who are unrelated to the owner and have no familiarity with the property, its maintenance or fire safety deficiencies that may be present.
Approval of Proposal G41-15 as submitted will improve code correlation and reinforce an important fire safety requirement.

G41-15

G42-15
310.6

Proposed Change as Submitted

Proponent : Carl Baldassarra, P.E., FSFPA, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

310.6 Residential Group R-4. Residential Group R-4 occupancy shall include buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive *custodial care*. Buildings of Group R-4 occupancy shall be classified as one of the occupancy conditions specified in Section 310.6.1 or 310.6.2. This group shall include, but not be limited to, the following:
Alcohol and drug centers
Assisted living facilities
Congregate care facilities
Group homes
Halfway houses
Residential board and care facilities
Social rehabilitation facilities

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except ~~as otherwise provided~~ where specific requirements for Group R-4 are prescribed. Group R-4, Condition 1 occupancies shall be permitted to comply with the construction requirements in ~~this code~~ the *International Residential Code*.

Reason: The Group R-4 facilities were developed to be consistent with the Fair Housing Act. Over time, changes have been made to the codes that have resulted in jurisdictions being subject to discrimination lawsuits under the Fair Housing Act. The Group R-4 occupancy, when it first was developed for the code, was permitted to comply with IRC. This allowance was taken away without technical justification.
The IRC has a sprinkler requirement, so these homes should be permitted to be constructed in accordance with the IRC. Forcing a facility to drag a sprinkler system with them, just in case a jurisdiction may decide to not require single family home to sprinkler, is not good code practice.

If facilities decide to stay in the IBC, Group R-4, Condition 1 are required to have a NFPA 13D sprinkler system (Section 903.2.8.2) and Group R-4, Condition 2 are required to have a NFPA 13R sprinkler system (Section 903.2.8.3). The proposed wording is for consistency in the language in Chapter 3. The Group R-4, Condition 2, due to the level of care provided for the residents, the Condition 2 will stay with the IBC so it gets the increased sprinkler protection and attic protection. Group R-4, Condition 1, has residents capable of self-preservation, so they can go to the IRC and the sprinkler protection there.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the

CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The prescriptive requirements of the IRC are generally the same or lesser cost that IBC Type 5 construction.

G42-15 : 310.6-BALDASSARRA4269

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The following is a corrected Committee Reason Statement for G42 -15 and was posted May 15, 2015. It replaces the previously posted statement:

The committee approved this proposal to provide clarification regarding the requirements for R-4 occupancies. While in general R-4 occupancies are to comply with R-3 standards, there are specific provisions which apply specifically to R-4 occupancies. The proposal also clarifies that only R-4 Condition 1 occupancies have the option of comply with the provisions of the IRC. This assures that the higher needs residents of an R-4 Condition 2 occupancy are covered by the standard of the IBC. Within the family of I-Codes, the R-4 occupancy will be provided with sprinkler protection regardless of the code it is developed under. The committee acknowledged that some state adoptions have removed sprinkler requirements in the IRC.

Assembly Motion: Disapprove
Online Vote Results: Successful
Support: 68.52% (283) Oppose: 31.48% (130)
Assembly Action : Disapproved

Individual Consideration Agenda

Public Comment 1:

Proponent : Jeffrey Shapiro, representing IRC Fire Sprinkler Coalition (jeff.shapiro@intlcodeconsultants.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

310.6 Residential Group R-4. Residential Group R-4 occupancy shall include buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive *custodial care*. Buildings of Group R-4 occupancy shall be classified as one of the occupancy conditions specified in Section 310.6.1 or 310.6.2. This group shall include, but not be limited to, the following:
Alcohol and drug centers
Assisted living facilities

Congregate care facilities
Group homes
Halfway houses
Residential board and care facilities
Social rehabilitation facilities

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except where specific requirements for Group R-4 are prescribed. Group R-4, Condition 1 occupancies shall be permitted to comply with the construction requirements in the *International Residential Code* provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or Section P2904 of the International Residential Code.

Commenter's Reason: We have no concern with this proposal being disapproved, as recommended by the online vote. However, if it is ultimately the membership's preference to allow R4 occupancies to be built under the IRC, the inclusion of fire sprinklers should be mandated by the IBC as a condition of this allowance. Mandating the sprinkler system under the IBC correlates with the committee recommendation and assembly action on G33-15 and with how the IRC deals with lodging houses under IRC Section 101.2 (and in the IBC if the public comment to G41-15 is successful).
It is important that the IBC specify a sprinkler requirement as a condition of allowing application of the IRC to non-family uses of dwellings to ensure that sprinklers are provided to protect occupants. Relying solely on the IRC sprinkler requirement, which has been legislatively blocked in 16 states and not yet adopted in many other jurisdictions, would certainly be inconsistent with the intent of the IBC and IRC, which is to require fire sprinklers in all residential occupancies.

If G42-15 were approved without this amendment, it is realistic to expect that single family homes, duplexes and townhouses will be constructed for group home applications that include rehab facilities, halfway houses, etc. with up to 16 occupants plus staff in each dwelling unit and having no fire sprinklers. That's a life safety risk that far outweighs arguing semantics and philosophical aspects of model codes and code adoption.

Public Comment 2:

Proponent : Assembly Action requests Disapprove.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Disapprove was successful by a vote of 68.52% (283) to 31.48% (130) by eligible members online during the period of May 14 - May 28, 2015.

G42-15

G43-15
311.1.1

Proposed Change as Submitted

Proponent : Stephen Thomas, Colorado Code Consulting, LLC, representing International Association of Building Officials (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

311.1.1 Accessory storage spaces. A room or space used for storage purposes that is ~~less than 100 square feet (9.3 m^2) in area and~~ accessory to another occupancy shall be classified as part of that occupancy. ~~The aggregate area of such rooms or spaces shall not exceed the allowable area limits of Section 508.2.~~ _

Reason: The subject of storage rooms has been discussed since the first edition of the IBC. The original code considered storage rooms as incidental uses and required them to be separated from the remainder of the building or be provided with a fire extinguishing system. The original requirement was based on health care uses, but was not introduced that way. That provision was deleted from the Incidental Use Table because it was causing problems with the design of buildings and there was no technical justification to maintain the requirement.
The 2015 IBC was revised with the above section limiting the area to 100 square feet once again. However, it does not tell the user what to do if it exceeds 100 square feet. There was also no technical justification provided to support the 100 square foot limit. This proposal deletes the square footage limit as well as deleting the last sentence that did not give any direction as to what occupancy was to be used to determine the maximum aggregate area.

Cost Impact: Will not increase the cost of construction
This change is a clarification of the code and reduction in the potential requirements. Therefore, it may be a reduction in construction cost.

G43-15 : 311.1.1-THOMAS5290

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The square footage limitation is unneeded. The limit is unneeded. Many felt that the elimination of the whole provision would be appropriate since the accessory occupancy regulation is adequately addressed.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Maureen Traxler, Seattle Dept of Planning &

Development, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

~~**311.1.1 Accessory storage spaces.** A room or space used for storage purposes that is accessory to another occupancy shall be classified as part of that occupancy.~~

Commenter's Reason: Section 311.1.1 was added to the code during the last cycle to allow small storage rooms on upper floors. Since accessory occupancies are classified as the occupancy appropriate to their use, storage occupancies would be classified as Group S and limited to no more than 6 stories. However, this section isn't needed in the current IBC because Section 508.2.2 allows accessory occupancies to use the tabular values for height and stories of the main occupancy.

Public Comment 2:

Proponent : William Hall, Porand Cement Association, representing Portland Cement Association (jhall@cement.org) requests Disapprove.

Commenter's Reason: Removing the 100 square foot. limit now means that storage rooms are unlimited in size and without door closers or even doors. The code is very clear on what to do if the storage area is greater than 100 square feet meet the separated or non-separated provisions of the code. If this change is approved, the storage area can be larger than the main occupancy and will cause conflict with other sections.
Storage area have far greater fuel loads and are typically un-occupied.

G43-15

G45-15

202, 202 (New), 312.1, C101.1

Proposed Change as Submitted

Proponent : Joe Scibetta, representing Self

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

AGRICULTURAL BUILDING. A structure designed and constructed to house farm implements, hay, grain, ~~poultry, livestock~~ or other horticultural products. This structure shall not be a place of human habitation or a place of employment where agricultural products are processed, treated or packaged, nor shall it be a place used by the public.

Add new definition as follows:

ANIMAL HOUSING FACILITY. Area of a building or structure, including interior and adjacent exterior spaces, where humans interact with animals for the purpose of feeding, resting, working, exercising, treating, examining, or exhibiting the animals in their care. Examples of animal housing facilities include, but are not limited to, barns, kennels, coops, stables, sheds, pens, corrals, runs, vivaria, terraria, laboratories, and zoos.

Revise as follows:

312.1 General. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings
Aircraft hangars, accessory to a oneor two-family residence (see Section 412.5)
Animal housing facilities
Barns
Carports
Fences more than 6 feet (1829 mm) in height
Grain silos, accessory to a residential occupancy
Greenhouses
~~Livestock shelters~~
Private garages
Retaining walls
Sheds
~~Stables~~
Tanks
Towers

C101.1 Scope. The provisions of this appendix shall apply exclusively to

agricultural buildings and animal housing facilities. Such buildings shall be classified as Group U and shall include, but not be limited to, the following uses:

1. Livestock shelters or buildings, including shade structures and milking barns.
2. Poultry buildings or shelters.
3. Barns.
4. Storage of equipment and machinery used exclusively in agriculture.
5. Horticultural structures, including detached production greenhouses and crop protection shelters.
6. Sheds.
7. Grain silos.
8. Stables.

Reason: Agricultural buildings do not encompass the wide variety of animal housing facilities where humans interact with animals for the purpose of feeding, treating, exercising, working, etc. Therefore, animal housing facilities need to be incorporated into the current Group U listing. To avoid redundancies, and since animal housing facilities include but are not limited to livestock shelters and stables, those two entries have been deleted, as animal housing facilities would incorporate those structures and others fitting the definition of an animal housing facility. The current, individual listings of livestock shelters and stables do not, on their own, account for the variety of animal housing facilities that exist, whereas the term "animal housing facilities" does. The revision to the list in Section 312 is necessary to provide a better representation of structures where animals are housed and where human interaction occurs, as opposed to agricultural buildings where there is little to no human occupancy or interaction with animals. Such a refinement consolidates the separate listings of livestock shelters and stables into a broader and more encompassing heading of animal housing facilities. A corresponding definition of an animal housing facility is proposed for Chapter 2.
In keeping with those proposed changes, and since Appendix C addresses Group U structures, this proposal seeks to incorporate animal housing facilities accordingly. Since the listing in Appendix C lists some, but not all, types of animal housing facilities, the proposed language here includes the interjectory phrase "but not be limited to" so that animal housing facilities that do not fall within the categories of livestock shelter, poultry house or stable, may still be incorporated and viewed as a Group U occupancy.

Cost Impact: Will not increase the cost of construction
No cost impact as this is simply a refinement of the existing list of Group U structures and providing a differentiation in terminology between animal housing facilities and agricultural buildings to ensure that both types of structures are addressed here.

G45-15 : 312.1-SCIBETTA3446

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Adding the definition is adding confusion. Livestock and agricultural things are often in the same building. There was discomfort with including the terms 'zoos' and 'laboratories' because such may be more appropriate in different occupancies than Group U.

Individual Consideration Agenda

Public Comment 1:

Proponent : Joe Scibetta, representing Self requests Approve as Submitted.

Commenter's Reason: By disapproving Proposal G45-15 at the Action Hearings in April, the responsible committee is perpetuating a definition that is incorrect and overlooking an important type of facility that should be defined and placed within the proper classification.

The definition of Agricultural Buildings is incorrect and needs to be revised. Agricultural Buildings are for farm implements, feed, storage materials, etc., not for animals. Reference to poultry and livestock do not belong in that definition as animals are not storage material. NFPA 150, the Standard for Fire and Life Safety in Animal Housing Facilities, states that animals are "sentient beings with a value greater than that of simple property" (NFPA 150 A.1.1.1). Additionally, NFPA 101, The Life Safety Code, has eliminated reference to animals from both the Storage Occupancy definition and Storage Occupancy chapters in that document. Therefore, the IBC's inclusion of livestock and poultry housing in the definition of agricultural buildings, which again are structures for storage material, contradicts those two documents. The intent of the Code is to provide "safety to *life and property* from fire" (101.3). Animal housing facilities present a new opportunity for the Code to meet that intent without creating conflict or contradiction with other portions of the Code.

Proposal G45-15, therefore, refines and corrects the definition of Agricultural Buildings in keeping with the established view that animals are not storage material.

A new definition of Animal Housing Facilities provides a proper placeholder, then, for facilities that house, not just livestock and poultry, but animals in labs for medical research, animals in zoos, in stables, kennels, veterinary clinics, etc. The apparent confusion during the April Action Hearings over the inclusion of various structures like labs where animals might be housed was unfounded. The proposed definition makes it clear that where an area or portion of a structure houses animals, that area or portion is considered an animal housing facility. Those areas of a lab or zoo, for example, that do not house animals would fall under other classifications. Currently, though, those areas of a structure that house animals (all types, not just livestock and poultry) are not addressed anywhere in the Code.

Furthermore, by proposing the placement of Animal Housing Facilities into the Group U classification, the IBC will provide the needed guidance on how to address these types of facilities. The resistance to placing Animal Housing Facilities in Group U is insupportable. If not Group U, then where do such facilities belong? They need to be placed somewhere in the IBC as they are currently unaddressed. Group U, an obvious grouping for miscellaneous structures that do not fit nicely into other established classifications, is the perfect placeholder. Including reference to livestock and poultry under the Agricultural Building definition is not only inaccurate but ignores the wide variety of animal housing facilities that do **not** house livestock or poultry but house other types of animals instead. The committee statement that animals and agricultural storage can and do at times occupy the same space is *not in conflict with this proposal*. Both agricultural buildings and animal housing faciilites would be addressed as Group U structures. It is inaccurate, however, to conclude that agricultural buildings and animal housing facilities are synonomous. Animals in a kennel or clinic, for example, are not being housed in an agricultural building. In short, animal housing facilities are unique areas where a much wider and varied

array of human interaction with animals takes place, areas that no definition or classification currently addresses.

Proposal G45-15 should be approved as submitted as it will satisfactorily, and without conflict, resolve both a clear inaccuracy and a clear oversight within the Code.

G45-15

G48-15

312.1, 312.1.1 (New)

Proposed Change as Submitted

Proponent : Vickie Lovell, InterCode Incorporated, representing National Greenhouse Manufacturers Association (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

312.1 General. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings
Aircraft hangars, accessory to a oneor two-family residence (see Section 412.5)
Barns
Carports
Fences more than 6 feet (1829 mm) in height
Grain silos, accessory to a residential occupancy
~~Greenhouses~~
Livestock shelters
Private garages
Retaining walls
Sheds
Stables
Tanks
Towers

Add new text as follows:

312.1.1 Greenhouses. Greenhouses not classified as Group A-3, B, Group E, F-2 or Group M shall be classified as Use Group U. Greenhouses that are accessory buildings to Group B, E or M occupancies, and utility or accessory greenhouses that are not classified in any specific occupancy shall be classified as Group U.

Reason: Greenhouses are a type of special structure intended to create and maintain a unique sunlit environment used exclusively for, and essential to, the commercial cultivation, protection or maintenance of plants. This proposal ONLY addresses commercial greenhouse structures and NOT other spaces such as sunrooms, solariums, glass enclosed walkways, atria or other types of interior spaces that permit ample sunlight so as to prominently feature plants for aesthetic purposes.
The majority of commercial greenhouses are truly agricultural structures that are classified as Group U.

The primary purpose of a greenhouse is for the propagation of plants. Many typical building requirements intended for human comfort, health, safety and welfare are not applicable or necessary for the construction or operation of greenhouses. However, this proposal is intended to clarify that some greenhouses can be used for

other enterprises, such as retail business, research by schools and universities, conservation, education, display by botanical institutions holding documented collections of specialty plants, and similar activities. This proposal, along with the other proposals that modify the occupancies to include greenhouses, has created indicators to assist the designer and the code official to recognize when appropriate design distinctions should be made, and to help determine more consistently when a greenhouse should be classified as a use group other than Group U.

{{235}}

Greenhouse - Use Group U.

Cost Impact: Will not increase the cost of construction
THERE IS NO COST IMPACT RELATED TO THIS PROPOSAL BECAUSE THIS PROPOSAL MAINLY CLARIFIES EXISTING CODE LANGUAGE REGARDING GROUP U GREENHOUSES. THE PROPOSAL DOES NOT ADD REQUIREMENTS FOR GROUP B, E, OR M GREENHOUSES BEYOND WHAT THE CODE ALREADY REQUIRES FOR THOSE OCCUPANCIES.

G48-15 : 312.1-LOVELL5098

Public Hearing Results

Committee Action: Approved as Modified

Modification:

312.1.1 Greenhouses. Greenhouses not classified as Group A-3, B, Group E, ~~F-2~~ F-1 or Group M shall be classified as Use Group U. ~~Greenhouses that are accessory buildings to Group B, E or M occupancies, and utility or accessory greenhouses that are not classified in any specific occupancy shall be classified as Group U.~~

Committee Reason: The industry has asked us to provide clarity for the code officials in addressing these buildings. With the collection of proposals, greenhouses used for other occupancies will take precidence and only those not otherwise classified would fall to the Group U. The overall package may need some further refinement, but the committee felt this should be the beginning of the solution. The modifications changed F-2 to F-1 recognizing that plant materiels and the containers provide a level of combustible materials consistent with the F-1 occupancies. The second modification deletes language that is essentially redundant with the first sentence of the new section.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Amanda Hickman, InterCode Incorporated, representing National Greenhouse Manufacturers Association (amanda@intercodeinc.com) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

312.1 General. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings
Aircraft hangars, accessory to a oneor two-family residence (see Section 412.5)
Barns
Carports
Fences more than 6 feet (1829 mm) in height
Grain silos, accessory to a residential occupancy
Livestock shelters
Private garages
Retaining walls
Sheds
Stables
Tanks
Towers

312.1.1 Greenhouses. Greenhouses not classified as Group ~~A-3~~ A, B, ~~Group~~ E, ~~F-1~~ F or ~~Group~~ M shall be classified as Use Group U.

Commenter's Reason: The committee members were favorable to the concept of assigning occupancy classifications to greenhouses when appropriate. However, they raised a practical problem relating to Use Groups F1 and F2 for commercial greenhouses. This public comment cleans up the new language that was approved by the committee, plus it captures the Use Group F correctly depending on the crop and growing conditions, the size and scope of the greenhouse and other considerations based on the height and area table.

The majority of greenhouses are truly agricultural structures and are classified as Group U because the primary purpose of a greenhouse is for the propagation of plants. The code should retain Group U being the default occupancy Use Group for these types of structures. However, this group of proposal acknowledges that some greenhouses are being used for other enterprises, such as retail business, research by schools and universities, conservation, education, display by botanical institutions holding documented collections of specialty plants, and similar activities. Such greenhouses may be assigned a Use Group such as A, B, E, F or M.

Commercial scale plant production facilities may be classified as Use Group F1 or F2, depending on the crop and growing conditions.

This proposal, along with other proposals that modify the occupancies to include greenhouses, have created identifiers to assist the designer and the code official to recognize when appropriate design distinctions should be made, and to help determine more consistently when a greenhouse should be classified as a use group other than Group U.

This proposal and subsequent public comment is part of a bigger cache of proposals intended to distinguish the various uses of greenhouses above and beyond the protection, cultivation and maintenance of plants:

G13
G27
G29

G30
G31
G48

This proposal ONLY addresses greenhouses, and NOT other sunny spaces such as sunrooms, solariums, glass enclosed walkways, atria or other types of interior spaces that permit ample sunlight so as to prominently feature plants for aesthetic purposes.

Cost Impact: Will not increase the cost of construction.
There is no cost impact related to this proposal because this proposal mainly clarifies existing code language regarding Group U greenhouses. The proposal does not add requirements for Group B, E, or M greenhouses beyond what the code already requires for those occupancies.

Public Comment 2:

Proponent : Vickie Lovell, InterCode Incorporated, representing National Greenhouse Manufacturers Association (vickie@intercodeinc.com) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

312.1 General. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings
Aircraft hangars, accessory to a oneor two-family residence (see Section 412.5)
Barns
Carports
Fences more than 6 feet (1829 mm) in height
Grain silos, accessory to a residential occupancy
<u>Greenhouses not classified as Group A, B, E, F or M</u>
Livestock shelters
Private garages
Retaining walls
Sheds
Stables
Tanks
Towers

~~**312.1.1 Greenhouses.** Greenhouses not classified as Group A-3, B, Group E, F-1 or Group M shall be classified as Use Group U.~~

Commenter's Reason: The committee members were generally favorable to the concept of assigning occupancy classifications to greenhouses when appropriate. However, they raised a practical problem relating to Use Groups F1 and F2 for commercial greenhouses. This public comment cleans up the new language that was approved by the Committee, plus it captures the Use Group F correctly depending on the crop and growing conditions, the size and scope of the greenhouse

and other considerations based on the height and area table.

The majority of greenhouses are truly agricultural structures and are classified as Group U because the primary purpose of a greenhouse is for the propagation of plants. The code should retain Group U being the default occupancy Use Group for these types of structures. However, this group of proposal acknowledges that some greenhouses are being used for other enterprises, such as retail business, research by schools and universities, conservation, education, display by botanical institutions holding documented collections of specialty plants, and similar activities. Such greenhouses may be assigned a Use Group such as A, B, E, F or M. Commercial scale plant production facilities may be classified as Use Group F1 or F2, depending on the crop and growing conditions.

This proposal, along with other proposals that modify the occupancies to include greenhouses, have created identifiers to assist the designer and the code official to recognize when appropriate design distinctions should be made, and to help determine more consistently when a greenhouse should be classified as a use group other than Group U.

This proposal and subsequent public comment is part of a bigger cache of proposals intended to distinguish the various uses of greenhouses above and beyond the protection, cultivation and maintenance of plants:

G13
G27
G29
G30
G31
G48

This proposal ONLY addresses greenhouses, and NOT other sunny spaces such as sunrooms, solariums, glass enclosed walkways, atria or other types of interior spaces that permit ample sunlight so as to prominently feature plants for aesthetic purposes.

Cost Impact: Will not increase the cost of construction.
There is no cost impact related to this proposal because this proposal mainly clarifies existing code language regarding Group U greenhouses. The proposal does not add requirements for Group B, E, or M greenhouses beyond what the code already requires for those occupancies.

Public Comment 3:

Proponent : Kathleen Petrie, representing City of Seattle, Department of Planning and Development (kathleen.petrie@seattle.gov) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

312.1.1 Greenhouses. Greenhouses not classified as ~~Group A-3, B, Group E, F-1 or Group M~~ another occupancy shall be classified as Use Group U.

Commenter's Reason: Code proposals G29, G30, and G31 were disapproved by the committee, so the B, E, and F occupancies listed in G48 would not be applicable if the committee action is upheld. Occupancy groups may also change with future code cycles so it is best to keep the language of new Section 302.1.1 more general. Therefore, using the term "another occupancy" can apply to any occupancy a

greenhouse may be categorized under.

G48-15

G49-15

402, 402.1,402.3, 402.4, [F] 402.5, 402.6, [F] 402.7, 402.8, 507.13

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete and substitute as follows:

~~**SECTION 402**~~
~~**COVERED MALL AND OPEN MALL BUILDINGS**~~

Delete without substitution:

~~**402.1 Applicability.** The provisions of this section shall apply to buildings or structures defined herein as *covered or open mall buildings* not exceeding three floor levels at any point nor more than three *stories above grade plane*. Except as specifically required by this section, *covered and open mall buildings* shall meet applicable provisions of this code.~~

~~**Exceptions:**~~

~~1. Foyers and lobbies of Groups B, R-1 and R-2 are not required to comply with this section.~~
~~2. Buildings need not comply with the provisions of this section where they totally comply with other applicable provisions of this code.~~

Revise as follows:

507.13 Covered and open mall buildings and anchor buildings. The area of *covered and open mall buildings* and *anchor buildings* not exceeding three *stories* in height ~~that~~ above grade plane.

Exceptions:

1. Foyers and lobbies of Groups B, R-1 and R-2 are not required to comply with ~~Section 402 shall~~ this section.
2. Buildings need not ~~be limited.~~ comply with the provisions of this section where they totally comply with other applicable provisions of this code.

~~**402.2**~~ **507.13.1 Definitions.**

(*The text of this section and subsequent sections would be unchanged except to update section references.)*

~~**402.1.1**~~ **507.13.2 Open space.** .

~~**402.1.2**~~ **507.13.3 Open mall building perimeter line.** .

~~**402.3**~~ **507.13.4 Lease plan.** .

~~402.4~~ 507.13.5 **Construction.**

~~402.4.1~~ 507.13.5.1 **Area and types of construction.** .

~~402.4.1.1~~ 507.13.5.1.1 **Covered and open mall buildings.**

~~402.4.1.2~~ 507.13.5.1.2 **Anchor buildings.**

~~402.4.1.3~~ 507.13.5.1.3 **Parking garage.** .

~~402.4.2~~ 507.13.5.2 **Fire-resistance-rated separation.**

~~402.4.2.1~~ 507.13.5.2.1 **Tenant separations.**

~~402.4.2.2~~ 507.13.5.2.2 **Anchor building separation.**

~~402.4.2.2.1~~ 507.13.5.2.1 **Openings between anchor building and mall.**

~~402.4.2.3~~ 507.13.5.2.3 **Parking garages.**

~~402.4.3~~ 507.13.5.3 **Open mall construction.**

~~402.4.3.1~~ 507.13.5.3.1 **Pedestrian walkways.**

[F] ~~402.5~~ 507.13.6 **Automatic sprinkler system.**

~~402.6~~ 507.13.7 **Interior finishes and features.** .

~~402.6.1~~ 507.13.7.1 **Interior finish.**

~~402.6.2~~ 507.13.7.2 **Kiosks.**

~~402.6.3~~ 507.13.7.3 **Children's play structures.**

~~402.6.4~~ 507.13.7.4 **Plastic signs.**

~~402.6.4.1~~ 507.13.7.4.1 **Area.**

~~402.6.4.2~~ 507.13.7.4.2 **Height and width.**

~~402.6.4.3~~ 507.13.7.4.3 **Location.** .

~~402.6.4.4~~ 507.13.7.4.4 **Plastics other than foam plastics.**

~~402.6.4.4.1~~ 507.13.7.4.4.1 **Encasement.** .

~~402.6.4.5~~ 507.13.7.4.5 **Foam plastics.**

~~402.6.4.5.1~~ 507.13.7.4.5.1 **Density.**

~~402.6.4.5.2~~ 507.13.7.4.5.2 **Thickness.**

[F] ~~402.7~~ 507.13.8 **Emergency systems.**

[F] ~~402.7.1~~ 507.13.8.1 **Standpipe system.**

[F] ~~402.7.2~~ 507.13.8.2 **Smoke control.**

[F] ~~402.7.3~~ 507.13.8.3 **Emergency power.**

[F] ~~402.7.4~~ 507.13.8.4 **Emergency voice/alarm communication system.**

[F] ~~402.7.5~~ 507.13.8.5 Fire department access to equipment.

~~402.8~~ 507.13.9 Means of egress.

~~402.8.1~~ 507.13.9.1 Mall width.

~~402.8.1.1~~ 507.13.9.1.1 Minimum width.

~~402.8.2~~ 507.13.9.2 Determination of occupant load.

~~402.8.2.1~~ 507.13.9.2.1 Occupant formula.

~~402.8.2.2~~ 507.13.9.2.2 OLF range.

~~402.8.2.3~~ 507.13.9.2.3 Anchor buildings.

~~402.8.2.4~~ 507.13.9.2.4 Food courts.

~~402.8.3~~ 507.13.9.3 Number of means of egress.

~~402.8.4~~ 507.13.9.4 Arrangements of means of egress.

~~402.8.4.1~~ 507.13.9.4.1 Anchor building means of egress.

~~402.8.5~~ 507.13.9.5 Distance to exits.

~~402.8.6~~ 507.13.9.6 Access to exits.

~~402.8.6.1~~ 507.13.9.6.1 Exit passageways.

~~402.8.7~~ 507.13.9.7 Service areas fronting on exit passageways.

~~402.8.8~~ 507.13.9.8 Security grilles and doors.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Malls are probably one of the more interesting special use and occupancy provisions, particularly since the open mall provisions were included. While there are several very specific criteria associated with a mall (the occupant load calculation, anchor buildings, etc.), fundamentally they are exceptions to the area limits of buildings. Having these provisions hidden in Chapter 4 clouds the choices users of the code have when designing large developments. One-story and two-story unlimited area buildings are included in the exceptions for the area limts of buildings, however malls, having many of the same limitations are permitted to be three stories in height and to have almost any occupancy. When examining choices for how to configure such a development should be rather simple by looking at the list within the section on area limitations.

By moving the provisions in Chapter 4 for mall buildings into the area limits in Chapter 5, the triggers and allowances for malls will be clear and obvious choices. Correlation of references to new code locations are not included in the proposal but need to be provided by the editorial staff.

Cost Impact: Will not increase the cost of construction

There are no technical changes in the sections of the code and there should be no cost impact related to what is currently required as compared with what is proposed. In reality it may reduce the cost of construction as the option to use the allowances for malls as an unlimited area building will become more obvious.

G49-15 : 402-COLLINS4639

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This proposal addressing mall buildings. There was some support for completely distributing egress provisions to chapter 10, sprinkers to Chapter 9, etc. But the proposal series would put topic specific provisions in other parts of the code - for example by moving malls to chapter 5, you move egress and sprinkler requirements to Chapter 5.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

507.13 Covered and open mall buildings and anchor buildings. ~~The area of~~ C~~*covered*~~ *overed and open mall buildings* and *anchor buildings* not exceeding three *stories* in height above grade plane shall be in accordance with Section 402.

Exceptions:

1. Foyers and lobbies of Groups B, R-1 and R-2 are not required to comply with this section.
2. Buildings need not comply with the provisions of this section where they totally comply with other applicable provisions of this code.

Commenter's Reason: Covered mall buildings and anchor buildings are an option for unlimited area buildings in Chapter 5, Section 507.13, but no reference is made to the technical requirements of Section 402. This modification to the original proposal will make it clear to code users that the requirements of Section 402 are applicable in order to conform to the unlimited area buildings allowance.

G49-15

G50-15

403, 403.1, 403.2, [F] 403.3, [F] 403.4, [F] 403.4.5, [F] 403.4.6, 403.4.7, [F] 403.4.8, 403.5, 403.6

Proposed Change as Submitted

Proponent : David Collins (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 403**~~
~~**HIGH-RISE BUILDINGS**~~

Revise as follows:

~~**403.1**~~ **504.3.1 Applicability.** *High-rise buildings* shall comply with Sections ~~403.2~~ 504.3.2 through ~~403.6~~ 504.3.6.

Exception: The provisions of Sections ~~403.2~~ 504.3.2 through ~~403.6~~ 504.3.6 shall not apply to the following buildings and structures:

1. Airport traffic control towers in accordance with Section 412.3.
2. *Open parking garages* in accordance with Section 406.5.
3. The portion of a building containing a Group A-5 occupancy in accordance with Section 303.6.
4. Special industrial occupancies in accordance with Section 503.1.1.
5. Buildings with:
   - 5.1. A Group H-1 occupancy;
   - 5.2. A Group H-2 occupancy in accordance with Section 415.8, 415.9.2, 415.9.3 or 426.1; or,
   - 5.3. A Group H-3 occupancy in accordance with Section 415.8.

~~**403.2**~~ **504.3.2 Construction.**

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~**403.2.1**~~ **504.3.2.1 Reduction in fire-resistance rating.**

~~**403.2.1.1**~~ **504.3.2.1.1 Type of construction.**

~~**403.2.1.2**~~ **504.3.2.1.2 Shaft enclosures.**

~~**403.2.2**~~ **504.3.2.2 Seismic considerations.**

~~**403.2.3**~~ **504.3.2.3 Structural integrity of interior exit stairways and elevator hoistway enclosures.**

~~**403.2.3.1**~~ **504.3.2.3.1 Wall assembly.**

~~**403.2.3.2**~~ **504.3.2.3.2 Wall assembly materials.**

~~**403.2.3.3**~~ **504.3.2.3.3 Concrete and masonry walls.**

~~403.2.3.4~~ 504.3.2.3.4 Other wall assemblies.

TABLE ~~403.2.4~~ 504.3.2.4
MINIMUM BOND STRENGTH

~~403.2.4~~ 504.3.2.4 Sprayed fire-resistant materials (SFRM).

[F] ~~403.3~~ 504.3.3 Automatic sprinkler system.

[F] ~~403.3.1~~ 504.3.3.1 Number of sprinkler risers and system design.

[F] ~~403.3.1.1~~ 504.3.3.1.1 Riser location.

[F] ~~403.3.2~~ 504.3.3.2 Water supply to required fire pumps.

[F] ~~403.3.3~~ 504.3.3.3 Secondary water supply.

[F] ~~403.3.4~~ 504.3.3.4 Fire pump room.

[F] ~~403.4~~ 504.3.4 Emergency systems.

[F] ~~403.4.1~~ 504.3.4.1 Smoke detection.

[F] ~~403.4.2~~ 504.3.4.2 Fire alarm system.

[F] ~~403.4.3~~ 504.3.4.3 Standpipe system.

[F] ~~403.4.4~~ 504.3.4.4 Emergency voice/alarm communication system.

[F] ~~403.4.5~~ 504.3.4.5 Emergency responder radio coverage.

[F] ~~403.4.6~~ 504.3.4.6 Fire command.

~~403.4.7~~ 504.3.4.7 Smoke removal.

[F] ~~403.4.8~~ 504.3.4.8 Standby and emergency power.

[F] ~~403.4.8.1~~ 504.3.4.8.1 Equipment room.

[F] ~~403.4.8.2~~ 504.3.4.8.2 Fuel line piping protection.

[F] ~~403.4.8.3~~ 504.3.4.8.3 Standby power loads.

[F] ~~403.4.8.4~~ 504.3.4.8.4 Emergency power loads.

~~403.5~~ 504.3.5 Means of egress and evacuation.

~~403.5.1~~ 504.3.5.1 Remoteness of interior exit stairways.

~~403.5.2~~ 504.3.5.2 Additional interior exit stairway.

~~403.5.3~~ 504.3.5.3 Stairway door operation.

~~403.5.3.1~~ 504.3.5.3.1 Stairway communication system.

~~403.5.4~~ 504.3.5.4 Smokeproof enclosures.

~~403.5.5~~ 504.3.5.5 Luminous egress path markings.

~~403.5.6~~ 504.3.5.6 Emergency escape and rescue.

~~403.6~~ 504.3.6 Elevators.

~~403.6.1~~ 504.3.6.1 Fire service access elevator.

~~403.6.2~~ 504.3.6.2 Occupant evacuation elevators.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
High-rise buildings is a good example of the issues with the use of the IBC and tall buildings. Section 504 very speicifically limits the height of buildings but references the criteria in Section 510 for some exceptions. Nowhere in that section is high-rise buildings mentioned. Is the designer supposed to know that Chapter 4 contains provisions that simply because of the buildings preportions these additional allowances and criteria must be met? Does the code official understand when the thresholds for the specific requirements in Chapter 4 are meant to apply to buildings that Table 503 would allow to be built in excess of the 75 foot, 120 foot and 420 foot limits? Nothing in the code provides that clarity.

By moving the provisions in Chapter 4 for high-rise buildings into the height limits in Chapter 5, the triggers and requirements for high-rise will be clear and obvious. Correlation of references to new code locations are not included in the proposal but need to be provided by the editorial staff.

Cost Impact: Will not increase the cost of construction
This change simply reorganizes the code to make it clearer for code userrs to understand how the code is intended to apply. There is no cost impact for this change.

G50-15 : 403-COLLINS4649

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in

Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a minority of the committee. This proposal addresses high-rise buildings. The committee felt that these buildings do provide unique needs and requirements and the regulations should remain as a package in Chapter 4.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

504.1 General. The height, in feet, and the number of stories of a building shall be determined based on the type of construction, occupancy classification and whether there is an *automatic sprinkler system* installed throughout the building.

> **~~Exception~~ Exceptions:**
> 1. The *building height* of one-*story* aircraft hangars, aircraft paint hangars and buildings used for the manufacturing of aircraft shall not be limited where the building is provided with an *automatic sprinkler system* or *automatic fire-extinguishing system* in accordance with Chapter 9 and is entirely surrounded by *public ways* or *yards* not less in width than one and one-half times the *building height*.
>
> 2. High-rise buildings shall comply with Sections 403.2 through 403.6.

Commenter's Reason: There is nothing in Chapter 5 that references the requirements in Chaprter 4 for for high rise buildings. Originally we had proposed to move the requirements for high rise into Chapter 5, but the Code Change Committee rejected that indicating that the special requirements belong in Chapter 4. This change will introduce an exception for the height requirements for buildings and reference the provisions in Section 403 for high-rise buildings.

G50-15

G51-15

404, 404.1, 404.1.1, 712.1.7, 404.2, [F] 404.3, [F] 404.4, 404.5, 404.6, [F] 404.7, 404.8, 404.9, 404.9.1, 404.9.2, 404.9.3

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 404**~~
~~**ATRIUMS**~~

~~**404.1 General.** In other than Group H occupancies, and where permitted by Section 712.1.7, the provisions of Sections 404.1 through 404.10 shall apply to buildings or structures containing vertical openings defined as "Atriums."~~

~~**404.1.1 Definition.** The following term is defined in Chapter 2:~~

Revise as follows:

712.1.7 Atriums. In other than Group H occupancies, ~~atriums~~ floor openings connecting three or more stories and complying with ~~Section 404~~ this section shall be permitted.

Exception: As used in this section, balconies within assembly groups or mezzanines that comply with Section 505 are not considered stories.

~~**404.2**~~ **712.1.7.1 Use.**

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~404.3~~ 712.1.7.2 Automatic sprinkler protection.

[F] ~~404.4~~ 712.1.7.3 Fire alarm system.

~~404.5~~ 712.1.7.4 Smoke control.

~~404.6~~ 712.1.7.5 Enclosure of atriums.

[F] ~~404.7~~ 712.1.7.6 Standby power.

~~404.8~~ 712.1.7.7 Interior finish.

~~404.9~~ 712.1.7.8 Exit access travel distance.

~~404.9.1~~ 712.1.7.8.1 Egress not through the atrium.

~~404.9.2~~ 712.1.7.8.2 Exit access travel distance at the level of exit discharge.

~~404.9.3~~ 712.1.7.8.3 Exit access travel distance at other than the level of exit discharge.

~~404.10~~ 712.1.7.9 Interior exit stairways.

Reason: Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
The provisions for Atriums in Chapter 4 are a classic case of the confusion caused by the code. As defined an atrium includes virtually any opening between two or more floors. However, in the code there are a miriad of options for openings through two or more floors and indeed, an atrium is simply only one option for creation of openings and providing the necessary protection because of that opening as listed in section 712.1. However, because it is listed in Chapter 4 without any direction that limits its application to a choice by the designer, it is often cited as being necessary, when in fact it is not because another option has been chosen. Similarly, because of the definition other floor openings are not being permitted, which is why the definition is being deleted and the charging language in the Section 712.1 for atriums includes the appropriate limitations from the definition.

By moving the provisions for atrium design to Chapter 7 and referencing the determination of when it is to be applied, the code users will much more readily understand the intent of the code.

Cost Impact: Will not increase the cost of construction
As a needed clarification of the code, this will actually reduce the cost of construction where the unnecessary application of this section will allow for less onerous solutions the code allows.

G51-15 : [F] 404.3-COLLINS4655

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He beleives that their location in Chapter 4 results in them being either overlooked or found late in the process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements a use or building feature before proceding throught the rest of the code to determine allowed height, area, construciton types, and fire protection requirments found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or specialized

set of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This proposal was addressing atriums, the proposed location is Chapter 7. Section 712 provides various options for addressing how openings in horizontal assemblies should be addressed. While there was support for relocating the atrium provisions, the committee expressed concern that improvements to text of the provisons needs to be done. There was a call to improve the definition of atrium. The committee raised the distinction of atriums that are an occupied space where the other methods for addressing openings in horizontal assemblies do not focus on the space as an occupied portion of the building.

Assembly Motion: **As Submitted**
Online Vote Results: **Failed**
Support: 13.18% (46) Oppose: 86.82% (303)
Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, The Preview Group, Inc., representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

404.1.1 Definition. The following term is defined in Chapter 2:

ATRIUM. An opening connecting three or more stories other than enclosed stairways, elevators, hoistways, escalators, plumbing, electrical, air-conditioning or other equipment, which is closed at the top and not defined as a mall. Stories, as used in this definition, do not include balconies within assembly groups or mezzanines that comply with Section 505.

712.1.7 Atriums. In other than Group H occupancies, atriums connecting three or more floors, complying with Section 404 shall be permitted.

Commenter's Reason: Users of the code are often confused by the duplication and overlap of the definition of an atrium and a floor opening. Both are permitted by Section 712.1, and the only requirements additional requirements for an atrium are when it connects three or more floors. With this change to the definition, it will be clear that the provisions of 404.1 for Atriums only apply when it connects three levels.

G51-15

G52-15

405, 504.4, 405.1, 405.2, [F] 405.3, 405.4, 405.4.1, 405.4.2, 405.4.3, 405.5, 405.5.1, 405.5.2, [F] 405.6, 405.7, 405.7.1, 405.7.2, [F] 405.8, [F] 405.8.1, [F] 405.8.2, [F] 405.9

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 405**~~
~~**UNDERGROUND BUILDINGS**~~

Revise as follows:

504.4 Number of stories above grade plane. The maximum number of stories of a building shall not exceed the limits specified in Table 504.4.

~~**405.1**~~ **504.5** ~~**General**~~ **Floors below the level of exit discharge.** The provisions of Sections ~~405.2~~ 504.5.1 through ~~405.9~~ 504.5.8 apply to building spaces having a floor level used for human occupancy more than 30 feet (9144 mm) below the finished floor of the lowest *level of exit discharge*.

Exceptions: The provisions of Section ~~405~~ 504.5 are not applicable to the following buildings or portions of buildings**:**

1. One- and two-family *dwellings*, sprinklered in accordance with Section 903.3.1.3.
2. Parking garages provided with *automatic sprinkler systems* in compliance with Section 405.3.
3. Fixed guideway transit systems.
4. *Grandstands*, *bleachers*, stadiums, arenas and similar facilities.
5. Where the lowest *story* is the only *story* that would qualify the building as an underground building and has an area not greater than 1,500 square feet (139 m^2) and has an *occupant load* less than 10.
6. Pumping stations and other similar mechanical spaces intended only for limited periodic use by service or maintenance personnel.

~~**405.2**~~ **504.5.1 Construction requirements.**

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~**[F] 405.3**~~ **504.5.2 Automatic sprinkler system.**

~~**405.4**~~ **504.5.3 Compartmentation.**

~~**405.4.1**~~ **504.5.3.1 Number of compartments.**

~~405.4.2~~ 504.5.3.2 Smoke barrier penetration.

~~405.4.3~~ 504.5.3.3 Elevators.

~~405.5~~ 504.5.4 Smoke control system.

~~405.5.1~~ 504.5.4.1 Control system.

~~405.5.2~~ 504.5.4.2 Compartment smoke control system.

[F] ~~405.6~~ 504.5.5 Fire alarm systems.

~~405.7~~ 504.5.6 Means of egress.

~~405.7.1~~ 504.5.6.1 Number of exits.

~~405.7.2~~ 504.5.6.2 Smokeproof enclosure.

[F] ~~405.8~~ 504.5.7 Standby and emergency power.

[F] ~~405.8.1~~ 504.5.7.1 Standby power loads.

[F] ~~405.8.2~~ 504.5.7.2 Emergency power loads.

[F] ~~405.9~~ 504.5.8 Standpipe system.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
All criteria for the height of buildings is found in Chapter 5 of the IBC. Requirements associated with portions below grade and the distinction between basements and "underground buildings" is located in Chapter 4. These concepts and principles in the code for parts of buildings are not distinct, but are tied directly to the design and planning for the arrangement of facilities and their support areas which are often found in spaces whicn meet the underground portions of a building. Isolating these criteria from the typical height limitations does not help the code user understand the ramifications of decisions being made often very early in the design process.

By moving the provisions in Chapter 4 for underground buildings into the height limits in Chapter 5, the triggers and requirements for underground builsings will be clear and obvious. Correlation of references to new code locations are not included in the proposal but need to be provided by the editorial staff.

Cost Impact: Will not increase the cost of construction
This code change simply clarifies and connects portions of the code addressing the same subject and will nto increase the cost of construction.

G52-15 : 405-COLLINS4797

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another

location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This proposal addresses underground buildings.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

504.5 Floors below the level of exit discharge. The provisions of ~~Sections 504.5.1 through 504.5.8~~ Section 405 shall apply to building spaces having a floor level used for human occupancy more than 30 feet (9144 mm) below the finished floor of the lowest *level of exit discharge*.

Exceptions: The provisions of Section 504.5 are not applicable to the following buildings or portions of buildings**:**

1. One- and two-family *dwellings*, sprinklered in accordance with Section 903.3.1.3.
2. Parking garages provided with *automatic sprinkler systems* in compliance with Section 405.3.
3. Fixed guideway transit systems.
4. *Grandstands*, *bleachers*, stadiums, arenas and similar facilities.
5. Where the lowest *story* is the only *story* that would qualify the building as an underground building and has an area not greater than 1,500 square feet (139 m^2) and has an *occupant load* less than 10.
6. Pumping stations and other similar mechanical spaces intended only for limited periodic use by service or

maintenance personnel.

Commenter's Reason: The original proposal was to move the provisions in Section 403 into a new Section 504.5 where the requirements for underground buildings could be found as part of the height and area requirements. The Code Chagne Committee rejected that concept and indicated that they preferred to have these special provisions in Chapter 4. As there are no references in Chapter 5 to these provisions, this modification will add a direct reference to these provisions and elminate any confusion as to how to treat stories below grade.

G52-15

G53-15

406, 406.1, 406.2, 406.3, 406.3.1, 406.3.2, 406.3.3, 406.3.4, 406.3.4.1, 406.3.4.2, 406.3.4.3, 406.3.5, 406.3.5.1, 406.3.6

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 406**~~
~~**MOTOR-VEHICLE-RELATED OCCUPANCIES**~~

~~**406.1 General.** Motor vehicle-related occupancies shall comply with Sections 406.1 through 406.8.~~

~~**406.2 Definitions.** The following terms are defined in Chapter 2:~~
~~**MECHANICAL-ACCESS OPEN PARKING GARAGES.**~~
~~**OPEN PARKING GARAGE.**~~
~~**PRIVATE GARAGE.**~~
~~**RAMP-ACCESS OPEN PARKING GARAGES.**~~

Revise as follows:

~~406.3~~ 312.2 Private garages and carports.

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~406.3.1~~ 312.2.1 Classification.

~~406.3.2~~ 312.2.2 Clear height.

~~406.3.3~~ 312.2.3 Garage floor surfaces.

~~406.3.4~~ 312.2.4 Separation.

~~406.3.4.1~~ 312.2.4.1 Dwelling unit separation..

~~406.3.4.2~~ 312.2.4.2 Openings prohibited.

~~406.3.4.3~~ 312.2.4.3 Ducts.

~~406.3.5~~ 312.2.5 Carports.

~~406.3.5.1~~ 312.2.5.1 Carport separation.

~~406.3.6~~ 312.2.6 Automatic garage door openers.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the

mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Requirements for motor vehicle related occupancies are located in Chapter 4 and all the limitations for where they are parts of other occupancies is found in Chapter 5, while the classification is found in Chapter 3 with limitations for when it is classified as a Group U, but no indication as to what the classification should be if it is larger than the U limitations. Moving the provisions from Chapter 4 to Chapter 3 and adding provisions for when it is not a Group U, users will more readily understand and use the code appropriately.

Cost Impact: Will not increase the cost of construction
Because the identical language is simply being moved to a new section and clafiying language indicating the intent of the section, no increae is cost should occur as a result of this change.

G53-15 : 406.3-COLLINS4806

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This proposal addresses private garages. There was support to move this to chapter 3 as it was occupancy specific.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, the Preview Group, representing The

American Institute of Architects (
)
requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the "motor vehicle related" occupancy provisions that include requirements for height and area are not referenced in Chapter 5, and the only reference in the IBC is found in a footnore in Table 602. No requirements for separation in 406.3 are referenced in the code, no reference to carports in Section 406.3.5 can be found in the codes, etc.
While the Code Change Committee rejected this proposal, there was support for this change as it is ocupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy in which these parking facilities are classified. We believe that much confusion and failure to understand how the code intends to be applied can be eliminated by placing these requirements into Section 312.

Public Comment 2:

Proponent : Steven Winkel, the Preview Group representing The American Institute of Architects (swinkel@preview-group.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

312.2 Private garages and carports. Private garages and carports shall comply with Section 406.3.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the "motor vehicle related" occupancy provisions that include requirements for height and area are not referenced in Chapter 5, and the only reference in the IBC is found in a footnore in Table 602. No requirements for separation in 406.3 are referenced in the code, no reference to carports in Section 406.3.5 can be found in the codes, etc.
While the Code Change Committee rejected this proposal, there was support for this change as it is ocupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy in which these parking facilities are classified. We believe that much confusion and failure to understand how the code intends to be applied can be eliminated by placing a reference to 406.3 in Section 312.

G53-15

G54-15

406.4, 406.5, 406.6, 406.7, 406.8

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Revise as follows:

~~406.7~~ 309.3 Motor fuel-dispensing facilities.

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~406.7.1~~ 309.3.1 Vehicle fueling pad. .

~~406.7.2~~ 309.3.2 Canopies.

~~406.7.2.1~~ 309.3.2.1 Canopies used to support gaseous hydrogen systems.

~~406.8~~ 311.2.1 Repair garages.

~~406.8.1~~ 311.2.1.1 Mixed uses.

~~406.8.2~~ 311.2.1.2 Ventilation.

~~406.8.3~~ 311.2.1.3 Floor surface.

~~406.8.4~~ 311.2.1.4 Heating equipment.

[F] ~~406.8.5~~ 311.2.1.5 Gas detection system.

[F] ~~406.8.5.1~~ 311.2.1.5.1 System design.

[F] ~~406.8.5.1.1~~ 311.2.1.5.1.1 Gas detection system components.

[F] ~~406.8.5.2~~ 311.2.1.5.2 Operation.

[F] ~~406.8.5.3~~ 311.2.1.5.3 Failure of the gas detection system.

[F] ~~406.8.6~~ 311.2.1.6 Automatic sprinkler system.

~~406.4~~ 311.3.1 Public parking garages.

~~406.4.1~~ 311.3.1.1 Clear height.

~~406.4.2~~ 311.3.1.2 Guards.

~~406.4.3~~ 311.3.1.3 Vehicle barriers.

~~406.4.4~~ 311.3.1.4 Ramps.

~~406.4.5~~ 311.3.1.5 Floor surface.

~~406.4.6~~ 311.3.1.6 Mixed occupancy separation.

~~406.4.7~~ 311.3.1.7 Special hazards.

~~406.4.8~~ 311.3.1.8 Attached to rooms.

~~406.5~~ 311.3.2 Open parking garages.

~~406.5.1~~ 311.3.2.1 Construction.

~~406.5.2~~ 311.3.2.2 Openings.

~~406.5.2.1~~ 311.3.2.2.1 Openings below grade.

~~406.5.3~~ 311.3.2.3 Uses.

~~406.5.4~~ 311.3.2.4 Area and height.

TABLE ~~406.5.4~~ 311.3.2.4
OPEN PARKING GARAGES AREA AND HEIGHT

~~406.5.4.1~~ 311.3.2.4.1 Single use.

~~406.5.5~~ 311.3.2.5 Area and height increases.

~~406.5.6~~ 311.3.2.6 Fire separation distance.

~~406.5.7~~ 311.3.2.7 Means of egress.

[F] ~~406.5.8~~ 311.3.2.8 Standpipe system.

~~406.5.9~~ 311.3.2.9 Enclosure of vertical openings.

~~406.5.10~~ 311.3.2.10 Ventilation.

~~406.5.11~~ 311.3.2.11 Prohibitions.

~~406.6~~ 311.3.3 Enclosed parking garages.

~~406.6.1~~ 311.3.3.1 Heights and areas.

~~406.6.2~~ 311.3.3.2 Ventilation.

[F] ~~406.6.3~~ 311.3.3.3 Automatic sprinkler system.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

By moving the provisions in Chapter 4 for mall buildings into the area limits in Chapter 5, the triggers and allowances for malls will be clear and obvious choices. Correlation of references to new code locations are not included in the proposal but need to be provided by the editorial staff.

Cost Impact: Will not increase the cost of construction

By moving the provisions from Chapter 4 to Chapter 3 will not increase the cost of construction.

G54-15 : 406-COLLINS4934

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This proposal addresses a variety of vehicle related uses there was support for relocation to Chapter 3.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the "motor fuel-dispensing facilities" occupancy provisions that include requirements for height and area are not referenced in Chapter 5, and the only reference in the IBC is found in a footnore in Table 602. No requirements for separation in 406.3 are referenced in the code, no reference to carports in Section 406.3.5 can be found in the codes, etc.
While the Code Change Committee rejected this proposal, there was support for this change as it is ocupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy in which these vehicle fueling

facilities are classified. We believe that much confusion and failure to understand how the code intends to be applied can be eliminated by placing these requirements into Section 311.

Public Comment 2:

Proponent : Steven Winkel, the Preview Group representing The American Institute of Architects (swinkel@preview-group.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

309.3 **Motor fuel-dispensing facilities** Motor fuel-dispensing facilities shall comply with the International Fire Code and Sections 406.7.1 and 406.7.2.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the "motor vehicle related" occupancy provisions that include requirements for height and area are not referenced in Chapter 5, and the only reference in the IBC is found in a footnore in Table 602. No requirements for compliance with the fire code, or the requirements for canopies in 406.7 are referenced in the code, etc.
While the Code Change Committee rejected this proposal, there was support for this change as it is ocupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy in which these parking facilities are classified. We believe that much confusion and failure to understand how the code intends to be applied can be eliminated by placing a reference to 406 in Section 309.3.

G54-15

G55-15

407, [F] 407.6, [F] 407.7, [F] 407.8, 308.3.4.3 (New), 308.4.3.2 (New)

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 407**~~
~~**GROUP I-2**~~

Revise as follows:

~~**407.1**~~ **308.4.3** ~~**General.**~~ **Group I-2 occupancy requirements** Occupancies in Group I-2 shall comply with the provisions of Sections ~~407.1~~ 308.4.3.1 through ~~407.10~~ 308.4.3.10 and other applicable provisions of this code.

~~**407.2**~~ **308.4.3.1 Corridors continuity and separation.**

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~**407.2.1**~~ **308.4.3.1.1 Waiting and similar areas.**

~~**407.2.2**~~ **308.4.3.1.2 Care providers' stations.**

~~**407.2.3**~~ **308.4.3.1.3 Psychiatric treatment areas.**

~~**407.2.4**~~ **308.4.3.1.4 Gift shops.**

~~**407.2.5**~~ **308.4.3.1.5 Nursing home housing units.**

~~**407.2.6**~~ **308.4.3.1.6 Nursing home cooking facilities.**

~~**407.3**~~ **308.4.3.2 Corridor wall construction.**

~~**407.3.1**~~ **308.4.3.2.1 Corridor doors.**

~~**407.4**~~ **308.4.3.4 Means of egress.**

~~**407.4.1**~~ **308.4.3.4.1 Direct access to a corridor.**

~~**407.4.1.1**~~ **308.4.3.4.1.1 Locking devices.**

~~**407.4.2**~~ **308.4.3.4.2 Distance of travel.**

~~**407.4.3**~~ **308.4.3.4.3 Projections in nursing home corridors.**

~~**407.4.4**~~ **308.4.3.4.4 Group I-2 care suites.**

~~**407.4.4.1**~~ **308.4.3.4.4.1 Exit access through care suites.**

~~**407.4.4.2**~~ **308.4.3.4.4.2 Separation.**

~~407.4.4.3~~ 308.4.3.4.4.3 Access to corridor.

~~407.4.4.4~~ 308.4.3.4.4.4 Doors within care suites.

~~407.4.4.5~~ 308.4.3.4.4.5 Care suites containing sleeping room areas.

~~407.4.4.5.1~~ 308.4.3.4.4.5.1 Area.

~~407.4.4.5.2~~ 308.4.3.4.4.5.2 Exit access.

~~407.4.4.6~~ 308.4.3.4.4.6 Care suites not containing sleeping rooms.

~~407.4.4.6.1~~ 308.4.3.4.4.6.1 Area.

~~407.4.4.6.2~~ 308.4.3.4.4.6.2 Exit access.

~~407.5~~ 308.4.3.5 Smoke barriers.

~~407.5.1~~ 308.4.3.5.1 Refuge area.

~~407.5.2~~ 308.4.3.5.2 Independent egress.

~~407.5.3~~ 308.4.3.5.3 Horizontal assemblies.

[F] ~~407.6~~ 308.4.3.6 Automatic sprinkler system.

[F] ~~407.7~~ 308.4.3.7 Fire alarm system.

[F] ~~407.8~~ 308.4.3.8 Automatic fire detection.

~~407.9~~ 308.4.3.9 Secured yards.

~~407.10~~ 308.4.3.10 Electrical systems.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
I-2 criteria in Chapter 4 are typical of the occupancy criteria that provide a summary of various provisions from the code for one occupancy. While an I-2 is somewhat special, many of these criteria are well recognized in the code for various occupancies. To make the application of these provisions obvious to the code user, their placement in Chapter 3 along with the classification information will provide greater clarity to their necessity by the code users.

Cost Impact: Will not increase the cost of construction
By making the special provisions for an I-2 occupancy obvious, the cost of construction should be reduced.

G55-15 : 407-COLLINS4807

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This proposal addresses I-2 occupancies, there was support for relocation to Chapter 3 because it is only related to an occupancy.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, the Preview Group, representing The American Institute of Architects (

)

requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the "institutional" occupancy provisions that include requirements for height and area are not referenced in Chapter 5, and the only reference in the IBC is found in an exception for fire alarms in Section 907.2.6.3.3. While the Code Change Committee rejected this proposal, there was support for this change as it is ocupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy in which these parking facilities are classified. We believe that much confusion and failure to understand how the code intends to be applied can be eliminated by placing a reference to 407 in Section 308.

Public Comment 2:

Proponent : Steven Winkel, the Preview Group representing The American Institute of Architects (swinkel@preview-group.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

308.4.3 Group I-2 occupancy requirements. Occupancies in Group I-2 shall comply with the provisions of Sections 407 and other applicable provisions of this code.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the "institutional" occupancy provisions that include requirements for specific I-2 institutional spaces and conditions, and the only reference in the IBC to Section 407 is for fire alarms in Section 907.2.6.2.
While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy in which these institutional facilities are classified. We believe that much confusion and failure to understand how the code intends to be applied can be eliminated by referncing the provisions in Section 407 in Section 308.

G55-15

G56-15

408, 408.1, 408.2, 408.3,408.4, 408.5,408.6, 408.7, 408.8, 408.9, [F] 408.10, [F] 408.11

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 408**~~
~~**GROUP I-3**~~

Revise as follows:

~~**408.1**~~ **308.5.6** ~~**General.**~~ **Group I-3 occupancy requirements** Occupancies in Group I-3 shall comply with the provisions of Sections ~~408.1~~ 308.5.6.1 through ~~408.11~~ 308.5.6.11 and other applicable provisions of this code ~~(see Section 308.5).~~

~~**408.1.1**~~ **308.5.6.1 Definitions.**

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~**408.2**~~ **308.5.6.2 Other occupancies.**

~~**408.3**~~ **308.5.6.3 Means of egress.**

~~**408.3.1**~~ **308.5.6.3.1 Door width.**

~~**408.3.2**~~ **308.5.6.3.2 Sliding doors.**

~~**408.3.3**~~ **308.5.6.3.3 Guard tower doors.**

~~**408.3.4**~~ **308.5.6.3.4 Spiral stairways.**

~~**408.3.5**~~ **308.5.6.3.5 Ships ladders.**

~~**408.3.6**~~ **308.5.6.3.6 Exit discharge.**

~~**408.3.7**~~ **308.5.6.3.7 Sallyports.**

~~**408.3.8**~~ **308.5.6.3.8 Interior exit stairway and ramp construction.**

~~**408.4**~~ **308.5.6.4 Locks.**

~~**408.4.1**~~ **308.5.6.4.1 Remote release.**

[F] ~~**408.4.2**~~ **308.5.6.4.2 Power-operated doors and locks.**

~~**408.4.3**~~ **308.5.6.4.3 Redundant operation.**

~~**408.4.4**~~ **308.5.6.4.4 Relock capability.**

~~408.5~~ 308.5.6.5 Protection of vertical openings.

~~408.5.1~~ 308.5.6.5.1 Floor openings.

~~408.5.2~~ 308.5.6.5.2 Shaft openings in communicating floor levels.

~~408.6~~ 308.5.6.6 Smoke barrier.

~~408.6.1~~ 308.5.6.6.1 Smoke compartments.

~~408.6.2~~ 308.5.6.6.2 Refuge area.

~~408.6.3~~ 308.5.6.6.3 Independent egress.

~~408.7~~ 308.5.6.7 Security glazing.

~~408.8~~ 308.5.6.8 Subdivision of resident housing areas.

~~408.8.1~~ 308.5.6.8.1 Occupancy Conditions 3 and 4.

~~408.8.2~~ 308.5.6.8.2 Occupancy Condition 5.

~~408.8.3~~ 308.5.6.8.3 Openings in room face.

~~408.8.4~~ 308.5.6.8.4 Smoke-tight doors.

~~408.9~~ 308.5.6.9 Windowless buildings.

[F] ~~408.10~~ 308.5.6.10 Fire alarm system.

[F] ~~408.11~~ 308.5.6.11 Automatic sprinkler system.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
I-3 criteria in Chapter 4 are typical of the occupancy criteria that provide a summary of various provisions from the code for one occupancy. While an I-3 is somewhat special, many of these criteria are well recognized in the code for various occupancies. To make the application of these provisions obvious to the code user, their placement in Chapter 3 along with the classification information will provide greater clarity to their necessity by the code users.

Cost Impact: Will not increase the cost of construction
Clarifying how the code is to be used for particular occupancies will not increase the cost of construction.

G56-15 : 408-COLLINS4808

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another

location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This proposal addresses I-3 occupancies, there was support for relocation to Chapter 3 because it is only related to an occupancy. Others find that moving to Chapter 3 provides no clear benefits.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the "institutional" occupancy provisions that include requirements for specific I-3 institutional spaces and conditions, and the only reference in the IBC to Section 408 is in an exception in Section 1019.4 for exit access stairways and ramps.

While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy in which these institutional facilities are classified. We believe that much confusion and failure to understand how the code intends to be applied to I-3 occupancies can be eliminated by placing the provisions in Section 407 in Section 308.

Public Comment 2:

Proponent : Steven Winkel, the Preview Group representing The American Institute of Architects (swinkel@preview-group.com)

requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

308.5.6 I-3 occupancy requirements. Occupancies in Group I-3 shall comply with the provisions of Sections 408.5.6.1 through 408.11 and other applicable provisions of this code.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the "institutional" occupancy provisions that include requirements for specific I-3 institutional spaces and conditions, and the only reference in the IBC to Section 408 is in an exception in Section 1019.4 for exit access stairways and ramps.

While the Code Change Committee rejected this proposal, there was support for this change as it is ocupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy in which these institutional facilities are classified. We believe that much confusion and failure to understand how the code intends to be applied to I-3 occupancies can be eliminated by referencing the provisions in Section 407 in Section 308.

G56-15

G57-15

[F] 307.1.1, 409, 409.1, 409.1.1, 409.2, 409.3, 409.3.1, 409.3.2, 409.3.3, 409.4, 409.5

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Revise as follows:

[F] 307.1.1 Uses other than Group H. An occupancy that stores, uses or handles hazardous materials as described in one or more of the following items shall not be classified as Group H, but shall be classified as the occupancy that it most nearly resembles.

1. Buildings and structures occupied for the application of flammable finishes, provided that such buildings or areas conform to the requirements of Section 416 and the *International Fire Code*.
2. Wholesale and retail sales and storage of flammable and combustible liquids in mercantile occupancies conforming to the *International Fire Code*.
3. Closed piping system containing flammable or combustible liquids or gases utilized for the operation of machinery or equipment.
4. Cleaning establishments that utilize combustible liquid solvents having a flash point of 140°F (60°C) or higher in closed systems employing equipment *listed* by an *approved* testing agency, provided that this occupancy is separated from all other areas of the building by 1-hour *fire barriers* constructed in accordance with Section 707 or 1hour *horizontal assemblies* constructed in accordance with Section 711, or both.
5. Cleaning establishments that utilize a liquid solvent having a flash point at or above 200°F (93°C).
6. Liquor stores and distributors without bulk storage.
7. Refrigeration systems.
8. The storage or utilization of materials for agricultural purposes on the premises.
9. Stationary batteries utilized for facility emergency power, uninterruptable power supply or telecommunication facilities, provided that the batteries are provided with safety venting caps and *ventilation* is provided in accordance with the *International Mechanical Code.*
10. Corrosive personal or household products in their original packaging used in retail display.
11. Commonly used corrosive building materials.
12. Buildings and structures occupied for aerosol storage shall be classified as Group S-1, provided that such buildings conform to the requirements of the *International Fire Code*.
13. Display and storage of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in quantities not

exceeding the maximum allowable quantity per *control area* in Group M or S occupancies complying with Section 414.2.5.

14. The storage of black powder, smokeless propellant and small arms primers in Groups M and R-3 and special industrial explosive devices in Groups B, F, M and S, provided such storage conforms to the quantity limits and requirements prescribed in the *International Fire Code*.
15. Motion picture projection rooms in which ribbon-type cellulose accetate or other safety film is utilized in conjunction with electric arc, xenon or other light-cource projection equipment that develops hazrdous gases, dust or ratiation. Where cellulose nitrate film is utilized or stored, such rooms shall comply with NFPA 40. All such projection rooms, appertenant electrical equipment, such as rheostats, transformers and generators shall be enclosed in an enclosure meeting the requirements of Section 307.1.3.

Delete without substitution:

~~SECTION 409~~
~~MOTION PICTURE PROJECTION ROOMS~~

Revise as follows:

~~409.1~~ 307.1.3 ~~General.~~ Motion picture projection rooms The provisions of Sections ~~409.1~~ 307.1.3.1 through ~~409.5~~ 307.1.3.5 shall apply to rooms in which ribbon-type cellulose acetate or other safety film is utilized in conjunction with electric arc, xenon or other light-source projection equipment that develops hazardous gases, dust or radiation. Where cellulose nitrate film is utilized or stored, such rooms shall comply with NFPA 40.

~~409.1.1~~ 307.1.3.1 Projection room required.

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~409.2~~ 307.1.3.2 Construction of projection rooms.

~~409.3~~ 307.1.3.3 Projection room and equipment ventilation.

~~409.3.1~~ 307.1.3.3.1 Supply air.

~~409.3.2~~ 307.1.3.3.2 Exhaust air.

~~409.3.3~~ 307.1.3.3.3 Projection machines.

~~409.4~~ 307.1.3.4 Lighting control.

~~409.5~~ 307.1.3.5 Miscellaneous equipment.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

Motion picture projection rooms as classified by this special section are indicated as having hazardous materials or producing them. How those are treated is addressed in part in Chapters 3 and 4. This change consolidates them into one section where a great deal of information regrding the application of the codes for hazardous materails is located making it easier for the code user to understand how to treat these spaces.

Cost Impact: Will not increase the cost of construction
This correlation of provisions for motion picture rooms will not increase the cost of construction.

G57-15 : 409-COLLINS4810

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This proposal addresses motion picture projection booths. There committee did find the proposed additional #15 in Section 307.1.1 would be a useful pointed to these regulations whether kept in Chapter 4 or moved to a new location.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the "motion picture" provisions that include requirements for construction of projection rooms, supply and exhaust air, etc. There are no references in the IBC to Section 409.
While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the hazard these facilities are classified in. We believe that much confusion and failure to understand how the code intends to be applied can be eliminated by placing the requirements in Section 409 in Section 307.

Public Comment 2:

Proponent : Steven Winkel, representing The Preview Group (swinkel@preview-group.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

307.1.3 Motion picture proejection rooms. The provisions of Sections 409.1 through 409.5 shall apply to rooms in which ribbon-type cellulose acetate or other safety film is utilized in conjunction with electric arc, xenon or other light-source projection equipment that develops hazardous gases, dust or radiation. Where cellulose nitrate film is utilized or stored, such rooms shall comply with NFPA 40.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the "motion picture" provisions that include requirements for construction of projection rooms, supply and exhaust air, etc. There are no references in the IBC to Section 409.
While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the hazard these facilities are classified in. We believe that much confusion and failure to understand how the code intends to be applied can be eliminated by referencing the requirements in Section 409 in Section 307.

G57-15

G58-15

410, 410.1, 410.2, 410.3, 410.4, 410.5, 410.6, [F] 410.7, [F] 410.8, 602.6 (New),

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 410**~~
~~**STAGES, PLATFORMS AND TECHNICAL PRODUCTION AREAS**~~

.

Add new text as follows:

602.6 **Stages, platforms and technical production areas** The provisions of Sections 602.6.1 through 602.6.8 shall apply to all parts of buildings and structures that contain stages or platforms and similar appurtenances as herein defined.

Revise as follows:

~~**410.1**~~ **602.6.1 Applicability.** The provisions of Sections ~~410.1~~ 602.6.1 through ~~410.8~~ 602.6.8 shall apply to all parts of buildings and structures that contain *stages* or *platforms* and similar appurtenances as herein defined.

~~**410.2**~~ **602.6.2 Definitions.**

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~**410.3**~~ **602.6.3 Stages.**

~~**410.3.1**~~ **602.6.3.1 Stage construction.**

~~**410.3.1.1**~~ **602.6.3.1.1 Stage height and area.**

~~**410.3.2**~~ **602.6.3.2 Technical production areas: galleries, gridirons and catwalks.**

~~**410.3.3**~~ **602.6.3.3 Exterior stage doors.**

~~**410.3.4**~~ **602.6.3.4 Proscenium wall.**

~~**410.3.5**~~ **602.6.3.5 Proscenium curtain.**

~~**410.3.6**~~ **602.6.3.6 Scenery.**

~~**410.3.7**~~ **602.6.3.7 Stage ventilation.**

~~**410.3.7.1**~~ **602.6.3.7.1 Roof vents.**

[F] ~~**410.3.7.2**~~ **602.6.3.7.2 Smoke control.**

~~410.4~~ 602.6.4 Platform construction.

~~410.4.1~~ 602.6.4.1 Temporary platforms.

~~410.5~~ 602.6.5 Dressing and appurtenant rooms.

~~410.5.1~~ 602.6.5.1 Separation from stage.

~~410.5.2~~ 602.6.5.2 Separation from each other.

~~410.6~~ 602.6.6 Means of egress.

~~410.6.1~~ 602.6.6.1 Arrangement.

~~410.6.2~~ 602.6.6.2 Stairway and ramp enclosure.

~~410.6.3~~ 602.6.6.3 Technical production areas. .

~~410.6.3.1~~ 602.6.6.3.1 Number of means of egress.

~~410.6.3.2~~ 602.6.6.3.2 Exit access travel distance.

~~410.6.3.3~~ 602.6.6.3.3 Two means of egress.

~~410.6.3.4~~ 602.6.6.3.4 Path of egress travel.

~~410.6.3.5~~ 602.6.6.3.5 Width.

[F] ~~410.7~~ 602.6.7 Automatic sprinkler system.

[F] ~~410.8~~ 602.6.8 Standpipes.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

The prrovisions in the code for stages, platforms and technical production areas in Chapter 4 includes elements of construction, wall criteria and opening protection methods required because of the hazards present. Moving these requirements to Chapter 6 to coincide with the construction requirements of buildings will make it obvious to users of the code how such features are to be integrated with the building construction limitations in the code.

Cost Impact: Will not increase the cost of construction
Moving these provisions from Chapter 4 to Chapter 6 will not change the cost of construction.

G58-15 : 410-COLLINS4811

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another

location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This proposal addresses stages which is a specialized construction feature. There was limited support to moving this provision to a different location.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for stages and platforms that include requirements for the size and configuration, doors, scenery, ventilation, etc. are not referenced anywhere in the codes

While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 6 for the construction limitations, configuration and materials allowed. We believe that much confusion and failure to understand how the code intends to be applied to stages and platforms can be eliminated by placing the provisions in Section 410 in Section 602. It is interesting to note that in the "effective use" portion of the IBC it states:

In some instances, it may not be necessary to apply the provisions of Chapter 4. For example, if a covered mall building complies with the provisions of the code for Group M, Section 402 does not apply; however, other sections that address a use, process or operation must be applied to that specific occupancy, such as stages and platforms, special amusement buildings and hazardous materials (Sections 410, 411 and 414).

It appears that there are "occupancies" associated with "stages and platforms, special amusement buildings and hazardous materials" and yet nothing within these sections refers to the occupancy, nor do the occupancies refer to these "special" provisions. The code is broken and should be fixed.

Public Comment 2:

Proponent : Steven Winkel, the Preview Group representing The American Institute of Architects (swinkel@preview-group.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

602.6 Stages, platforms and technical production areas. The provisions of Sections 410 shall apply to all parts of buildings and structures that contain stages or platforms and similar appurtenances as herein defined.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for stages and platforms that include requirements for the size and configuration, doors, scenery, ventilation, etc. are not referenced anywhere in the codes

While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 6 for the construction limitations, configuration and materials allowed. We believe that much confusion and failure to understand how the code intends to be applied to stages and platforms can be eliminated by placing a reference to the provisions in Section 410 in Section 602. It is interesting to note that in the "effective use" portion of the IBC it states:

> *In some instances, it may not be necessary to apply the provisions of Chapter 4. For example, if a covered mall building complies with the provisions of the code for Group M, Section 402 does not apply; however, other sections that address a use, process or operation must be applied to that specific occupancy, such as stages and platforms, special amusement buildings and hazardous materials (Sections 410, 411 and 414).*

It appears that there are "occupancies" associated with "stages and platforms, special amusement buildings and hazardous materials" and yet nothing within these sections refers to the occupancy, nor do the occupancies refer to these "special" provisions. The code is broken and should be fixed.

G58-15

G59-15

411, 411.1, 411.2, [F] 411.3, [F] 411.4, [F] 411.5, [F] 411.6, 411.7, 411.7.1, 411.8, 304.3 (New)

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 411**~~
~~**SPECIAL AMUSEMENT BUILDINGS**~~

Revise as follows:

~~**411.1**~~ **303.7** ~~**General**~~ **Special amusement buildings.** *Special amusement buildings* having an *occupant load* of 50 or more shall comply with the requirements for the appropriate Group A occupancy and Sections ~~411.1~~ 303.7.1 through ~~411.8~~ 303.7.7.~~*Special amusement buildings* having an *occupant load* of less than 50 shall comply with the requirements for a Group B occupancy and Sections 411.1 through 411.8.~~

> **Exception:** *Special amusement buildings* or portions thereof that are without walls or a roof and constructed to prevent the accumulation of smoke need not comply with this section.

For flammable *decorative materials*, see the *International Fire Code*.

~~**411.2**~~ **303.7.1 Definition.**

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~**411.3**~~ **303.7.2 Automatic fire detection.**

[F] ~~**411.4**~~ **303.7.3 Automatic sprinkler system.**

[F] ~~**411.5**~~ **303.7.4 Alarm.**

[F] ~~**411.6**~~ **303.7.5 Emergency voice/alarm communications system.**

~~**411.7**~~ **303.7.6 Exit marking.**

~~**411.7.1**~~ **303.7.6.1 Photoluminescent exit signs.**

~~**411.8**~~ **303.7.7 Interior finish.**

Add new text as follows:

304.3 Special amusement buildings. Special amusement buildings having an occupant load of less than 50 shall comply with the requirements for a Group B occupancy and Sections 303.7.1 through 303.7.7.

Exception: Special amusement buildings or portions thereof that are without walls or a roof and constructed to prevent the accumulation of smoke need not comply with this section.

For flammable decorative materials, see the *International Fire Code*.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

Special amusement buildings with more than 50 occupants or more are classified in Section 411.1 as being in an A occupancy. Those that are less than 50 are part of the B occupancy. This same requirements apply to assembly spaces within an office building, but are clearly delineated in Sections 301 and 304. With this change the same clarity for special amusement facilities will be brought to the code.

Cost Impact: Will not increase the cost of construction
By moving these provisions out of Chapter 4 into Chapter 3, no change in the cost of construction will result.

G59-15 : 411-COLLINS4813

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This proposal addresses special amusement facilties. The additional reference in Section 304.3 would prove helpful regardless of the future disposition of this proposal. As this is occupancy driven, there was more

support for its relocation.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for special amusement buildings that include requirements for detection and suppression, alarms, voice communication, etc. are not referenced anywhere in the codes.
While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy classification as places of assembly. We believe that much confusion and failure to understand how the code intends to be applied to stages and platforms can be eliminated by placing the provisions in Section 411 in Section 303. It is interesting to note that in the "effective use" portion of the IBC it states:

In some instances, it may not be necessary to apply the provisions of Chapter 4. For example, if a covered mall building complies with the provisions of the code for Group M, Section 402 does not apply; however, other sections that address a use, process or operation must be applied to that specific occupancy, such as stages and platforms, special amusement buildings and hazardous materials (Sections 410, 411 and 414).

It appears that there are "occupancies" associated with "stages and platforms, special amusement buildings and hazardous materials" and yet nothing within these sections refers to the occupancy, nor do the occupancies refer to these "special" provisions. The code is broken and should be fixed.

Public Comment 2:

Proponent : Steven Winkel, the Preview Group representing The American Institute of Architects (swinkel@preview-group.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

303.7 Special amusement buildings. Special amusement buildings having an occupant load of 50 or more shall comply with the requirements for the appropriate Group A occupancy and Section 411.

> **Exception:** Special amusement buildings or portions thereof that are without walls or a roof and constructed to prevent the accumulation of smoke need not comply with this section.

For flammable decorative materials, see the International Fire Code.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for special amusement buildings that include requirements for detection and suppression, alarms, voice communication, etc. are not referenced anywhere in the codes.

While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy classification as places of assembly. We believe that much confusion and failure to understand how the code intends to be applied to stages and platforms can be eliminated by placing the requirements in Section 411 in Section 303. It is interesting to note that in the "effective use" portion of the IBC it states:

> *In some instances, it may not be necessary to apply the provisions of Chapter 4. For example, if a covered mall building complies with the provisions of the code for Group M, Section 402 does not apply; however, other sections that address a use, process or operation must be applied to that specific occupancy, such as stages and platforms, special amusement buildings and hazardous materials (Sections 410, 411 and 414).*

It appears that there are "occupancies" associated with "stages and platforms, special amusement buildings and hazardous materials" and yet nothing within these sections refers to the occupancy, nor do the occupancies refer to these "special" provisions. The code is broken and should be fixed.

G59-15

G60-15

412, 412.1, 412.2, 412.3, 412.3.1, 412.3.2, 412.3.3, 412.3.4, 412.3.4.1, [F] 412.3.5, 412.3.6, 412.3.7, 412.3.7.1, 412.3.8, 412.7, 412.7.1, [F] 412.6, [F] 412.6.1, 412.6.2, [F] 412.6.3, [F] 412.6.4, [F] 412.6.5, [F] 412.6.6, 412.4, 412.4.1, 412.4.2, 412.4.3, 412.4.4, 412.4.5, [F] 412.4.6, [F] 412.4.6.1, [F] 412.4.6.2, 412.5, 412.5.1, 412.5.2, [F] 412.5.3, 412.5.4, 412.5.5, [F] 412.8, [F] 412.8.1, [F] 412.8.2, [F] 412.8.3, [F] 412.8.4, [F] 412.8.5

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 412~~
~~AIRCRAFT-RELATED OCCUPANCIES~~

~~**412.1 General**. Aircraft-related occupancies shall comply with Sections 412.1 through 412.8 and the International Fire Code.~~

~~**412.2 Definitions.**~~

Revise as follows:

~~412.3~~304.3.2 Airport traffic control towers.

(The text of this section and subsequent sections would be unchanged except to update section references.)

TABLE ~~412.3.1~~ 304.3.2.1
HEIGHT LIMITATIONS FOR AIRPORT TRAFFIC CONTROL TOWERS

~~412.3.1~~ 304.3.2.1 Type of construction. .

~~412.3.2~~ 304.3.2.2 Stairways.

~~412.3.3~~ 304.3.2.3 Exit access.

~~412.3.4~~ 304.3.2.4 Number of exits.

~~412.3.4.1~~ 304.3.2.4.1 Interior finish.

[F] ~~412.3.5~~ 304.3.2.5 Automatic fire detection systems.

~~412.3.6~~ 304.3.2.6 Automatic sprinkler system.

~~412.3.7~~ 304.3.2.7 Elevator protection. .

~~412.3.7.1~~ 304.3.2.7.1 Elevators for occupant evacuation.

~~412.3.8~~ 304.3.2.8 Accessibility.

TABLE ~~412.7~~306.2.1
AIRCRAFT MANUFACTURING EXIT ACCESS TRAVEL DISTANCE

~~412.7~~ 306.2.1 Aircraft manufacturing facilities. In buildings used for the manufacturing of aircraft, exit access travel distances indicated in Section 1017.1 shall be increased in accordance with the following:

1. The building shall be of Type I or II construction.
2. Exit access travel distance shall not exceed the distances given in Table ~~412.7~~.306.2.1.

~~412.7.1~~ 306.2.1.1 Ancillary areas.

[F] ~~412.6~~ 307.4.1 Aircraft paint hangars. Aircraft painting operations where flammable liquids are used in excess of the maximum allowable quantities per *control area* listed in Table 307.1(1) shall be conducted in an aircraft paint hangar that complies with the provisions of Sections ~~412.6.1~~ 307.4.1.1 through ~~412.6.6~~ 307.4.1.6.

[F] ~~412.6.1~~ 307.4.1.1 Occupancy group.

~~412.6.2~~ 307.4.1.2 Construction.

[F] ~~412.6.3~~ 307.4.1.3 Operations.

[F] ~~412.6.4~~ 307.4.1.4 Storage.

[F] ~~412.6.5~~ 307.4.1.5 Fire suppression.

[F] ~~412.6.6~~ 307.4.1.6 Ventilation.

~~412.4~~ 311.2.1 Aircraft hangars. ~~Aircraft hangars~~ All aircraft hangers shall be in accordnce with 311.2.1.1 through 311.2.1.6. In addition, aircraft painting hangers, manufacturing hangers and helipads shall be in accordance with ~~Sections 412.4.1 through 412.4.6.~~ Secions 311.3, 311.4 and 311.5 respectively.

~~412.4.1~~ 311.2.1.1 Exterior walls.

~~412.4.2~~ 311.2.1.2 Basements.

~~412.4.3~~ 311.2.1.3 Floor surface.

~~412.4.4~~ 311.2.1.4 Heating equipment.

~~412.4.5~~ 311.2.1.5 Finishing.

[F] ~~412.4.6~~ 311.2.1.6 Fire suppression.

TABLE [F] 311.2.1.6
HANGAR FIRE SUPPRESSION REQUIREMENTS[a,b,c]

[F] ~~412.4.6.1~~ 311.2.1.6.1 Hazardous operations.

[F] ~~412.4.6.2~~ 311.2.1.6.2 Separation of maximum single fire areas.

~~412.5~~ 312.7 Residential aircraft hangars. *Residential aircraft hangars* shall comply with Sections ~~412.5.1~~ 312.7.1 through ~~412.5.5~~ 312.7.5.

~~412.5.1~~ 312.7.1 Fire separation.

~~412.5.2~~ 312.7.2 Egress.

[F] ~~412.5.3~~ 312.7.3 Smoke alarms.

~~412.5.4~~ 312.7.4 Independent systems. .

~~412.5.5~~ 312.7.5 Height and area limits.

[F] ~~412.8~~ 1510.10 Heliports and helistops. *Heliports* and *helistops* shall be permitted to be erected on buildings or other locations where they are constructed in accordance with Sections ~~412.8.1 through 412.8.5~~.510.10.1 through 510.10.5

[F] ~~412.8.1~~ 1510.10.1 Size. *No change to text.*

[F] ~~412.8.2~~ 1510.10.2 Design.

[F] ~~412.8.3~~ 1510.10.3 Means of egress.

[F] ~~412.8.4~~ 1510.10.4 Rooftop heliports and helistops.

[F] ~~412.8.5~~ 1510.10.5 Standpipe system.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Aircraft related occupancies involves a broad number of applications. Aircraft control towers are listed as a B occupancy and items specific to them have been move to this location. Other elements of Section 412 include hangers and manufacturing which are part of the storage occupancies, as well as heliports and helitstops that are addressed as facilities on a rooftop. Those requirements are moved to the storage parts of the code and rooftop structures which include them for clarification.

Cost Impact: Will not increase the cost of construction
These provisions are moved for clarification with no technical changes and should not affect the cost of construction.

G60-15 : 412-COLLINS4814

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This section addresses aircraft control towers. This continues to be a very special type of occupancy/facility and it needs to remain in Chapter 4

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for aircraft control towers that include requirements for type of construction, stairways, ecit access, fire detection and suppression systems, etc. are not referenced anywhere in the codes except as an exception to fire protection in 907.2.13. It isn't clear why that particular exception was created and all the others weren't treated similarly

While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy classification as a business where it appears as the first item on the list of such occupancies. We believe that much confusion and failure to understand how the code intends to be applied to stages and platforms can be eliminated by placing the provisions in Section 411 in Section 303.

Public Comment 2:

Proponent : Steven Winkel, the Preview Group representing The American Institute of Architects (swinkel@preview-group.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

304.3.2 Airport traffic control towers. The provisions of Section 412.3 shall apply to airport traffic control towers occupied only for the following uses:

1. Airport traffic control cab.
2. Electrical and mechanical equipment rooms.
3. Airport terminal radar and electronics rooms.
4. Office spaces incidental to the tower operation.
5. Lounges for employees, including sanitary facilities.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for aircraft control towers that include requirements for type of construction, stairways, ecit access, fire detection and suppression systems, etc. are not referenced anywhere in the codes except as an exception to fire protection in 907.2.13. It isn't clear why that particular exception was created and all the others weren't treated similarly

While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy classification as a business where it appears as the first item on the list of such occupancies. We believe that much confusion and failure to understand how the code intends to be applied to stages and platforms can be eliminated by placing a reference to the provisions in Section 411 in Section 303.

G60-15

G61-15

412, 412.4, 412.4.1, 412.4.2, 412.4.3, 412.4.4, 412.4.5, [F] 412.4.6, [F] 412.4.6.1, [F] 412.4.6.2

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 412**~~
~~**AIRCRAFT-RELATED OCCUPANCIES**~~

Revise as follows:

~~**412.4**~~ **311.2.1 Aircraft hangars.** Aircraft hangars shall be in accordance with Sections ~~412.4.1~~ 311.2.1.1 through ~~412.4.6~~ 311.2.1.6.

~~**412.4.1**~~ **311.2.1.1 Exterior walls.**

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~**412.4.2**~~ **311.2.1.2 Basements.**

~~**412.4.3**~~ **311.2.1.3 Floor surface.**

~~**412.4.4**~~ **311.2.1.4 Heating equipment.**

~~**412.4.5**~~ **311.2.1.5 Finishing.**

[F] ~~**412.4.6**~~ **311.2.1.6 Fire suppression.**

TABLE [F] ~~**412.4.6**~~ **311.2.1.6**
HANGAR FIRE SUPPRESSION REQUIREMENTS[a,b,c]

[F] ~~**412.4.6.1**~~ **311.2.1.6.1 Hazardous operations.**

[F] ~~**412.4.6.2**~~ **311.2.1.6.2 Separation of maximum single fire areas.**

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

By moving the provisions in Chapter 4 for aircraft hangers into the area limits in Chapter 3, the triggers and allowances for malls will be clear and obvious choices. Correlation of references to new code locations are not included in the proposal but

need to be provided by the editorial staff.

Cost Impact: Will not increase the cost of construction
Simply moving the technical requirements from Chapter 4 to Chapter 3 does not change their application and will not increase the cost of construction.

G61-15 : 412-COLLINS4967

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This section addresses aircraft hangers.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for "aircraft-related occupancies" that include requirements for the exterior walls of hangers, basements, floor surfaces and fire suppression, etc. are not referenced anywhere in the codes.

While the Code Change Committee rejected this proposal, there was support for this

change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy classification as storage. We believe that much confusion and failure to understand how the code intends to be applied to aircraft-related occupancies can be eliminated by placing the provisions in Section 412 in Section 311.

Public Comment 2:

Proponent : Steven Winkel, the Preview Group representing The American Institute of Architects (swinkel@preview-group.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

311.2.1 Aircraft hangers. Aircraft hangars shall be in accordance with Section 412.4.1.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for "aircraft-related occupancies" that include requirements for the exterior walls of hangers, basements, floor surfaces and fire suppression, etc. are not referenced anywhere in the codes.

While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy classification as storage. We believe that much confusion and failure to understand how the code intends to be applied to aircraft-related occupancies can be eliminated by referencing the provisions in Section 412 in Section 311.

G61-15

G62-15

413, 413.1, 413.2

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 413~~
~~COMBUSTIBLE STORAGE~~

Revise as follows:

~~413.1~~ 311.2.1 ~~General~~ High-piled stock or rack storage. High-piled stock or rack storage in any occupancy group shall comply with the *International Fire Code*.

~~413.2~~ 311.2.2 Attic, under-floor and concealed spaces.

(The text of this section would be unchanged except to update section references.)

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

Provisions of the code for high-piles stock or rack storage are being moved to the occupancy sections which include the criteria for these conditions of storage and will provide a single location for users to find the requirements for this condition.

Cost Impact: Will not increase the cost of construction
The provisions for storage are not being changed and the new location should not create any additional cost of construction.

G62-15 : 413-COLLINS4816

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in

the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This section is a leftover after all other provisions were moved to the fire code. High pile storage isn't limited to the S occupancy.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for "combustible storage" that includes simply a reference to the IFC and attic or under-floor spaces which address fire separation is not referenced anywhere in the codes.

While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy classification as storage. We believe that much confusion and failure to understand how the code intends to be applied to combustible storage can be eliminated by placing the provisions in Section 413 in Section 311.

G62-15

G63-15

414, [F] 414.1, [F] 414.1.1, [F] 414.1.2, [F] 414.1.2.1, [F] 414.1.3, [F] 414.2, [F] 414.2.1, [F] 414.2.2, [F] 414.2.3, [F] 414.2.4, [F] 414.2.5, [F] 414.3, [F] 414.4, [F] 414.5, [F] 414.5.1, [F] 414.5.2, [F] 414.5.2.1, [F] 414.5.2.2, [F] 414.5.3, [F] 414.6, [F] 414.6.1, [F] 414.6.1.1, [F] 414.6.1.2, [F] 414.6.1.3

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION414~~
~~HAZARDOUS MATERIALS~~

Revise as follows:

[F] ~~414.1~~ 307.9 General. The provisions of Sections ~~414.1~~ 307.9.1 through ~~414.6~~ 307.9.6 shall apply to buildings and structures occupied for the manufacturing, processing, dispensing, use or storage of hazardous materials.

[F] ~~414.1.1~~ 307.9.1.1 Other provisions.

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~414.1.2~~ 307.9.1.2 Materials.

[F] ~~414.1.2.1~~ 307.9.1.2.1 Aerosols.

[F] ~~414.1.3~~ 307.9.1.3 Information required.

[F] ~~414.2~~ 307.9.2 Control areas.

[F] ~~414.2.1~~ 307.9.2.1 Construction requirements.

TABLE [F] ~~414.2.2~~ 307.9.2.2
DESIGN AND NUMBER OF CONTROL AREAS

[F] ~~414.2.2~~ 307.9.2.2 Percentage of maximum allowable quantities.

[F] ~~414.2.3~~ 307.9.2.3 Number.

[F] ~~414.2.4~~ 307.9.2.4 Fire-resistance-rating requirements.

[F] ~~414.2.5~~ 307.9.2.5 Hazardous material in Group M display and storage areas and in Group S storage areas.

TABLE [F]~~414.2.5(1)~~ 307.9.2.5 (1)
MAXIMUM ALLOWABLE QUANTITY OF FLAMMABLE AND COMBUSTIBLE

LIQUIDS IN WHOLESALE AND RETAIL SALES OCCUPANCIES PER CONTROL AREA[a]

TABLE [F] ~~414.2.5(2)~~ 307.9.2.5(2)
MAXIMUM ALLOWABLE QUANTITY PER INDOOR AND OUTDOOR CONTROL AREA IN GROUP M AND S OCCUPANCIES NONFLAMMABLE SOLIDS AND NONFLAMMABLE AND NONCOMBUSTIBLE LIQUIDS[d,e,f]

[F] ~~414.3~~ 307.9.3 Ventilation.

[F] ~~414.4~~ 307.9.4 Hazardous material systems.

[F] ~~414.5~~ 307.9.5 Inside storage, dispensing and use.

TABLE [F]~~414.5.1~~ 307.9.5.1
EXPLOSION CONTROL REQUIREMENTS[a, h]

[F] ~~414.5.1~~ 307.9.5.1 Explosion control.

[F] ~~414.5.2~~ 307.9.5.2 Emergency or standby power.

[F] ~~414.5.2.1~~ 307.9.5.2.1 Exempt applications.

[F] ~~414.5.2.2~~ 307.9.5.2.2 Fail-safe engineered systems.

[F] ~~414.5.3~~ 307.9.5.3 Spill control, drainage and containment.

[F] ~~414.6~~ 307.9.6 Outdoor storage, dispensing and use.

[F] ~~414.6.1~~ 307.9.6.1 Weather protection.

[F] ~~414.6.1.1~~ 307.9.6.1.1 Walls.

[F] ~~414.6.1.2~~ 307.9.6.1.2 Separation distance.

[F] ~~414.6.1.3~~ 307.9.6.1.3 Noncombustible construction.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Provisions of the code for manufacturing, processing, dispensing, use or storage are being moved to the occupancy sections which include the criteria for these conditions and will provide a single location for users to find the requirements for this condition.

Cost Impact: Will not increase the cost of construction
Because the technical provisions of the code are not being changed, but simply moved, there is no impact on the cost of construction.

G63-15 : [F] 414-

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This section addresses requirements which are only needed where hazardous materials are used in larger quantities.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for hazardous materials that include requirements for specific materials, aerosols, control areas, etc. are referenced in Section 307.1 stating:
... quantities in excess of those allowed in control areas complying with Section 414, based on the maximum allowable quantity limits for control areas set forth in Tables 307.1(1) and 307.1(2).

While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy classification for high-hazrd occupancies. We believe that much confusion and failure to understand how the code intends to be applied to hazardous materials can be eliminated by placing the provisions in Section 414 in Section 307. It is interesting to note that in the

"effective use" portion of the IBC it states:

In some instances, it may not be necessary to apply the provisions of Chapter 4. For example, if a covered mall building complies with the provisions of the code for Group M, Section 402 does not apply; however, other sections that address a use, process or operation must be applied to that specific occupancy, such as stages and platforms, special amusement buildings and hazardous materials (Sections 410, 411 and 414).

It appears that there are "occupancies" associated with "stages and platforms, special amusement buildings and hazardous materials" and yet nothing within these sections refers to the occupancy, nor do the occupancies refer to these "special" provisions. The code is broken and should be fixed. Section 307 includes a large quantity of information on how to control and limit the hazardous materials, but one of the fundamental parts of that decision is what are the control areas within which they are located. Moving those requirements into 307 will simplify the use of the code.

G63-15

G64-15

[F] 307.2, 307.6.1 (New), [F] 415.2, [F] 415.1, [F] 415.3, [F] 415.4, [F] 415.5, [F] 415.6, [F] 415.7, [F] 415.8, [F] 415.9, [F] 415.10, [F] 415.11

Proposed Change as Submitted

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete and substitute as follows:

~~**SECTION 415**~~
~~**GROUPS H-1, H-2, H-3, H-4 AND H-5**~~

~~**[F] 415.2 Definitions. The following terms are defined in Chapter 2:**~~

~~**CONTINUOUS GAS DETECTION SYSTEM.**~~
~~**DETACHED BUILDING.**~~
~~**EMERGENCY CONTROL STATION.**~~
~~**EXHAUSTED ENCLOSURE.**~~
~~**FABRICATION AREA.**~~
~~**FLAMMABLE VAPORS OR FUMES.**~~
~~**GAS CABINET.**~~
~~**GASROOM.**~~
~~**HAZARDOUS PRODUCTION MATERIAL (HPM).**~~
~~**HPM FLAMMABLE LIQUID.**~~
~~**HPM ROOM.**~~
~~**IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH).**~~
~~**LIQUID.**~~
~~**LIQUID STORAGE ROOM.**~~
~~**LIQUID USE, DISPENSING AND MIXING ROOM.**~~
~~**LOWER FLAMMABLE LIMIT (LFL).**~~
~~**NORMAL TEMPERATURE AND PRESSURE (NTP).**~~
~~**PHYSIOLOGICAL WARNING THRESHOLD LEVEL.**~~
~~**SERVICE CORRIDOR.**~~
~~**SOLID.**~~
~~**STORAGE, HAZARDOUS MATERIALS.**~~
~~**USE (MATERIAL).**~~
~~**WORKSTATION.**~~

Revise as follows:

[F] ~~415.1~~ 307.1.3 ~~Scope.~~ General provisions of H-1, H-2, H-3, H-4 and H-5 occupancies The provisions of Sections ~~415.1~~ 307.1.3.1 through ~~415.11~~ 307.1.3.3 shall apply to the Group H occupancy buildings where storage and use of hazardous materials occurs in excess of the maximum allowable quantities per *control area* listed in Section 307.1. Buildings and structures with an occupancy in Group H shall also comply with the

applicable provisions of Section 414 and the *International Fire Code*. Specific Group H occupancies shall comply with Sections 307.3, 307.4, 307.5, 307.6 and 307.7 as applicable.

[F] ~~415.3~~ 307.1.3.1 Automatic fire detection systems.

(The text of this section and subsequent sections would be unchanged except provide appropriate charging text and to update section references.)

[F] ~~415.4~~ 307.1.3.2 Automatic sprinkler system.

[F] ~~415.5~~ 307.1.3.3 Emergency alarms.

[F] ~~415.5.1~~ 307.1.3.3.1 Storage.

[F] ~~415.5.2~~ 307.1.3.3.2 Dispensing, use and handling.

[F] ~~415.5.3~~ 307.1.3.3.3 Supervision.

[F] ~~415.5.4~~ 307.1.3.3.4 Emergency alarm systems.

[F] ~~415.6~~ 307.1.3.4 Fire separation distance.

[F] ~~415.6.1~~ 307.1.3.4.1 Group H occupancy minimum fire separation distance.

[F] ~~415.6.1.1~~ 307.1.3.4.1.1 Group H-1.

[F] ~~415.6.1.2~~ 307.1.3.4.1.2 Group H-2.

[F] ~~415.6.1.3~~ 307.1.3.4.1.3 Groups H-2 and H-3.

[F] ~~415.6.1.4~~ 307.1.3.4.1.4 Explosive materials.

TABLE [F] ~~415.6.2~~ 307.1.3.4.2
DETACHED BUILDING REQUIRED

[F] ~~415.6.2~~ 307.1.3.4.2 Detached buildings for Group H-1, H-2 or H-3 occupancy.

[F] ~~415.6.2.1~~ 307.1.3.4.2.1 Wall and opening protection.

[F] 307.2 Definitions. The following terms are defined in Chapter 2:

AEROSOL
- **Level 1 aerosol products.**
- **Level 2 aerosol products.**
- **Level 3 aerosol products.**

AEROSOL CONTAINER.
BALED COTTON.
BALED COTTON, DENSELY PACKED.
BARRICADE.
- **Artificial barricade.**
- **Natural barricade.**

BOILING POINT.
CLOSED SYSTEM.
COMBUSTIBLE DUST.
COMBUSTIBLE FIBERS.
COMBUSTIBLE LIQUID.

Class II.
Class IIIA.
Class IIIB.
COMPRESSED GAS.
CONTINUOUS GAS DETECTION SYSTEM.
CONTROL AREA.
CORROSIVE.
CRYOGENIC FLUID.
DAY BOX.
DEFLAGRATION.
DETACHED BUILDING.
DETONATION.
DISPENSING.
EMERGENCY CONTROL STATION.
EXHAUSTED ENCLOSURE.
EXPLOSION.
EXPLOSIVE.
High explosive.
Low explosive.
Mass-detonating explosives.
UN/DOTn Class 1 explosives.
Division 1.1.
Division 1.2.
Division 1.3.
Division 1.4.
Division 1.5.
Division 1.6.
FABRICATION AREA.
FIREWORKS.
Fireworks, 1.3G.
Fireworks, 1.4G.
FLAMMABLE GAS.
FLAMMABLE LIQUEFIED GAS.
FLAMMABLE LIQUID.
Class IA.
Class IB.
Class IC.
FLAMMABLE MATERIAL.
FLAMMABLE SOLID.
FLAMMABLE VAPORS OR FUMES.
FLASH POINT.
GAS CABINET.
GASROOM.
HANDLING.
HAZARDOUS MATERIALS.
HAZARDOUS PRODUCTION MATERIAL (HPM).
HEALTH HAZARD.
HIGHLY TOXIC.
HPM FLAMMABLE LIQUID.
HPM ROOM.
IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH).
INCOMPATIBLE MATERIALS.
INERT GAS.
LIQUID.

LIQUID STORAGE ROOM.
LIQUID USE, DISPENSING AND MIXING ROOM.
LOWER FLAMMABLE LIMIT (LFL).
NORMAL TEMPERATURE AND PRESSURE (NTP).
OPEN SYSTEM.
OPERATING BUILDING.
ORGANIC PEROXIDE.
- **Class I.**
- **Class II.**
- **Class III.**
- **Class IV.**
- **Class V.**
- **Unclassified detonable.**

OXIDIZER.
- **Class 4.**
- **Class 3.**
- **Class 2.**
- **Class 1.**

OXIDIZING GAS.
PHYSICAL HAZARD.
PHYSIOLOGICAL WARNING THRESHOLD LEVEL.
PYROPHORIC.
PYROTECHNIC COMPOSITION.
SERVICE CORRIDOR.
SOLID.
STORAGE, HAZARDOUS MATERIALS.
TOXIC.
UNSTABLE (REACTIVE) MATERIAL.
- **Class 4.**
- **Class 3.**
- **Class 2.**
- **Class 1.**

USE (MATERIAL).
WATER-REACTIVE MATERIAL.
- **Class 3.**
- **Class 2.**
- **Class 1.**

WORKSTATION.

[F] ~~415.7~~ 307.3.2 Special provisions for Group H-1 occupancies.

[F] ~~415.7.1~~ 307.3.2.1 Floors in storage rooms.

[F] ~~415.8~~ 307.4.1 Special provisions for Group H-2 and H-3 occupancies.

[F] ~~415.8.1~~ 307.4.1.1 Multiple hazards.

[F] ~~415.8.2~~ 307.4.1.2 Separation of incompatible materials.

[F] ~~415.8.3~~ 307.4.1.3 Water reactives.

[F] ~~415.8.4~~ 307.4.1.4 Floors in storage rooms.

[F] ~~415.8.5~~ 307.4.1.5 Waterproof room.

[F] ~~415.9~~ 307.4.2 Group H-2 occupancy requirements.

[F] ~~415.9.1~~ 307.4.2.1 Flammable and combustible liquids.

[F] ~~415.9.1.1~~ 307.4.2.1.1 Mixed occupancies.

[F] ~~415.9.1.1.1~~ 307.4.2.1.1.1 Height exception.

[F] ~~415.9.1.2~~ 307.4.2.1.2 Tank protection.

[F] ~~415.9.1.3~~ 307.4.2.1.3 Tanks.

[F] ~~415.9.1.4~~ 307.4.2.1.4 Leakage containment.

[F] ~~415.9.1.5~~ 307.4.2.1.5 Leakage alarm.

[F] ~~415.9.1.6~~ 307.4.2.1.6 Tank vent.

[F] ~~415.9.1.7~~ 307.4.2.1.7 Room ventilation.

[F] ~~415.9.1.8~~ 307.4.2.1.8 Explosion venting.

[F] ~~415.9.1.9~~ 307.4.2.1.9 Tank openings other than vents.

[F] ~~415.9.2~~ 307.4.2.2 Liquefied petroleum gas facilities.

[F] ~~415.9.3~~ 307.4.2.3 Dry cleaning plants.

[F] ~~415.10~~ 307.5 Groups H-3 and H-4. Group H-3 occupancies shall be constructed in accordance with Section 307.4.1. Groups H-3 and H-4 shall be constructed in accordance with the applicable provisions of this ~~code~~ section and the *International Fire Code*.

[F] ~~415.10.1~~ 307.5.1 Flammable and combustible liquids.

[F] ~~415.10.2~~ 307.5.2 Gas rooms.

[F] ~~415.10.3~~ 307.5.3 Floors in storage rooms.

[F] ~~415.10.4~~ 307.5.4 Separation-highly toxic solids and liquids.

Add new text as follows:

307.6.1 Provisions of H-4 occupancies Group H-4 occupancies shall be constructed in accordance with Section 308.5.1

Revise as follows:

[F] ~~415.11~~ 307.7.1 Group H-5. In addition to the requirements set forth elsewhere in this code, Group H-5 shall comply with the provisions of Sections ~~415.11.1~~ 307.7.1.1 through ~~415.11.11~~ 307.7.1.11 and the *International Fire Code.*

[F] ~~415.11.1~~ 307.7.1.1 Fabrication areas.

[F] ~~415.11.1.1~~ 307.7.1.1.1 Hazardous materials.

[F] ~~415.11.1.1.1~~ 307.7.1.1.1.1 Aggregate quantities.

TABLE [F] ~~415.11.1.1.1~~307.7.1.1.1.1

QUANTITY LIMITS FOR HAZARDOUS MATERIALS IN A SINGLE FABRICATION AREA IN GROUP H-5[a]

[F] ~~415.11.1.1.2~~ 307.7.1.1.1.2 Hazardous production materials.

[F] ~~415.11.1.2~~ 307.7.1.1.2 Separation.

[F] ~~415.11.1.3~~ 307.7.1.1.3 Location of occupied levels.

[F] ~~415.11.1.4~~ 307.7.1.1.4 Floors.

[F] ~~415.11.1.5~~ 307.7.1.1.5 Shafts and openings through floors.

[F] ~~415.11.1.6~~ 307.7.1.1.6 Ventilation.

[F] ~~415.11.1.7~~ 307.7.1.1.7 Transporting hazardous production materials to fabrication areas.

[F] ~~415.11.1.8~~ 307.7.1.1.8 Electrical.

[F] ~~415.11.1.8.1~~ 307.7.1.1.8.1 Workstations.

[F] ~~415.11.2~~ 307.7.1.2 Corridors.

[F] ~~415.11.3~~ 307.7.1.3 Service corridors.

[F] ~~415.11.3.1~~ 307.7.1.3.1 Use conditions.

[F] ~~415.11.3.2~~ 307.7.1.3.2 Mechanical ventilation.

[F] ~~415.11.3.3~~ 307.7.1.3.3 Means of egress.

[F] ~~415.11.3.4~~ 307.7.1.3.4 Minimum width.

[F] ~~415.11.3.5~~ 307.7.1.3.5 Emergency alarm system. .

[F] ~~415.11.3.5.1~~ 307.7.1.3.5.1 Service corridors.

[F] ~~415.11.3.5.2~~ 307.7.1.3.5.2 Corridors and interior exit stairways and ramps.

[F] ~~415.11.3.5.3~~ 307.7.1.3.5.3 Liquid storage rooms, HPM rooms and gas rooms. .

[F] ~~415.11.3.5.4~~ 307.7.1.3.5.4 Alarm-initiating devices.

[F] ~~415.11.3.5.5~~ 307.7.1.3.5.5 Alarm signals.

[F] ~~415.11.4~~ 307.7.1.4 Storage of hazardous production materials.

[F] ~~415.11.5~~ 307.7.1.5 HPM rooms, gas rooms, liquid storage room construction.

[F] ~~415.11.5.1~~ 307.7.1.5.1 HPM rooms and gas rooms.

[F] ~~415.11.5.2~~ 307.7.1.5.2 Liquid storage rooms.

[F] ~~415.11.5.3~~ 307.7.1.5.3 Floors.

[F] ~~415.11.5.4~~ 307.7.1.5.4 Location.

[F] ~~415.11.5.5~~ 307.7.1.5.5 Explosion control.

[F] ~~415.11.5.6~~ 307.7.1.5.6 Exits..

[F] ~~415.11.5.7~~ 307.7.1.5.7 Doors.

[F] ~~415.11.5.8~~ 307.7.1.5.8 Ventilation.

[F] ~~415.11.5.9~~ 307.7.1.5.9 Emergency alarm system.

[F] ~~415.11.6~~ 307.7.1.6 Piping and tubing.

[F] ~~415.11.6.1~~ 307.7.1.6.1 HPM having a health-hazard ranking of 3 or 4. .

[F] ~~415.11.6.2~~ 307.7.1.6.2 Location in service corridors.

[F] ~~415.11.6.3~~ 307.7.1.6.3 Excess flow control.

[F] ~~415.11.6.4~~ 307.7.1.6.4 Installations in corridors and above other occupancies.

[F] ~~415.11.6.5~~ 307.7.1.6.5 Identification.

[F] ~~415.11.7~~ 307.7.1.7 Continuous gas detection systems.

[F] ~~415.11.7.1~~ 307.7.1.7.1 Where required.

[F] ~~415.11.7.1.1~~ 307.7.1.7.1.1 Fabrication areas.

[F] ~~415.11.7.1.2~~ 307.7.1.7.1.2 HPM rooms.

[F] ~~415.11.7.1.3~~ 307.7.1.7.1.3 Gas cabinets, exhausted enclosures and gas rooms.

[F] ~~415.11.7.1.4~~ 307.7.1.7.1.4 Corridors.

[F] ~~415.11.7.2~~ 307.7.1.7.2 Gas detection system operation.

[F] ~~415.11.7.2.1~~ 307.7.1.7.2.1 Alarms.

[F] ~~415.11.7.2.2~~ 307.7.1.7.2.2 Shutoff of gas supply.

[F] ~~415.11.8~~ 307.7.1.8 Manual fire alarm system.

[F] ~~415.11.9~~ 307.7.1.9 Emergency control station.

[F] ~~415.11.9.1~~ 307.7.1.9.1 Location.

[F] ~~415.11.9.2~~ 307.7.1.9.2 Staffing.

[F] ~~415.11.9.3~~ 307.7.1.9.3 Signals.

[F] ~~415.11.10~~ 307.7.1.10 Emergency power system.

[F] ~~415.11.10.1~~ 307.7.1.10.1 Required electrical systems.

[F] ~~415.11.10.2~~ 307.7.1.10.2 Exhaust ventilation systems.

[F] ~~415.11.11~~ 307.7.1.11 Automatic sprinkler system protection in exhaust ducts for HPM.

[F] ~~415.11.11.1~~ 307.7.1.11.1 Metallic and noncombustible nonmetallic exhaust ducts.

[F] ~~415.11.11.2~~ 307.7.1.11.2 Combustible nonmetallic exhaust ducts.

[F] ~~415.11.11.3~~ 307.7.1.11.3 Automatic sprinkler locations.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Provisions of the code for manufacturing, processing, dispensing, use or storage are being moved to the occupancy sections which include the criteria for these conditions and will provide a single location for users to find the requirements for this condition.

Cost Impact: Will not increase the cost of construction
Because the technical provisions of the code are not being changed, but simply moved, there is no impact on the cost of construction.

G64-15 : [F] 415.10.4-COLLINS5973

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This section addresses hazardous material related occupancies. There was support moving this to Chapter 3 with other occupancy driven requirements.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Submitted.

Commenter's Reason: his is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for hazardous materials that include requirements for alarms and suppression, storage, dispending, supervision, fire separation, etc. are simply referenced in Section 307.1 stating:
Hazardous occupancies are classified in Groups H-1, H-2, H-3, H-4 and H-5 and shall be in accordance with this section, the requirements of Section 415 and the International Fire Code.

While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy classification for high-hazrd occupancies. We believe that much confusion and failure to understand how the code intends to be applied to hazardous materials can be eliminated by placing the provisions in Section 415 in Section 307.

The code is broken and should be fixed. Section 307 includes a large quantity of information on how to control and limit the hazardous materials, but one of the fundamental parts of that decision is what are the control areas within which they are located. Moving those requirements into 307 will simplify the use of the code.

G64-15

G65-15

416, [F] 416.1, [F] 416.2, [F] 416.2.1, [F] 416.2.2, [F] 416.3, [F] 416.3.1, [F] 416.4, [F] 416.5

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 416**~~
~~**APPLICATION OF FLAMMABLE FINISHES**~~

Revise as follows:

[F] ~~416.1~~ 307.1.3 ~~General.~~ Application of flammable finishes The provisions of this section shall apply to the construction, installation and use of buildings and structures, or parts thereof, for the application of flammable finishes. Such construction and equipment shall comply with the *International Fire Code*.

[F] ~~416.2~~ 307.1.3.1 Spray rooms.

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~416.2.1~~ 307.1.3.1.1 Surfaces.

[F] ~~416.2.2~~ 307.1.3.1.2 Ventilation.

[F] ~~416.3~~ 307.1.3.2 Spraying spaces.

[F] ~~416.3.1~~ 307.1.3.2.1 Surfaces.

[F] ~~416.4~~ 307.1.3.3 Spray booths.

[F] ~~416.5~~ 307.1.3.4 Fire protection.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Flammable finishes are specifically part of the hazardous materials requirements and with this change are moved to Section 307 where all the criteria are located for identifying such materials. With this change once the code user is clear that the materials are hazardous, the requirements will be located in the same section making it clear what is necessary as a result.

Cost Impact: Will not increase the cost of construction
Because there are no changes to the technical requirements of the code for the spray applications of flammable materials, there will be no change in the cost of

construction as a result of this change.

G65-15 : [F] 416-COLLINS4818

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for hazardous materials that include requirements for specific application of finishes, ventilation, spray booths and fire protection are only referenced in Section 307.1 stating:
An occupancy that stores, uses or handles hazardous materials as described in one or more of the following items shall not be classified as Group H, but shall be classified as the occupancy that it most nearly resembles.

1. Buildings and structures occupied for the application of flammable finishes, provided that such buildings or areas conform to the requirements of Section 416 and the International Fire Code.

While the Code Change Committee rejected this proposal, there was support for this

change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy classification for high-hazrd occupancies. We believe that much confusion and failure to understand how the code intends to be applied to hazardous materials can be eliminated by placing the provisions in Section 416 in Section 307.

G65-15

G66-15

417, [F] 417.1, [F] 417.2, [F] 417.3, [F] 417.4

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 417**~~
~~**DRYING ROOMS**~~

Revise as follows:

[F] ~~417.1~~ 307.6.2.1 ~~General.~~ Drying rooms A drying room or dry kiln installed within a building shall be constructed entirely of *approved* noncombustible materials or assemblies of such materials regulated by the *approved* rules or as required in the general and specific sections of this chapter for special occupancies and where applicable to the general requirements of the *International Mechanical Code*.

[F] ~~417.2~~ 307.6.2.1.1 Piping clearance.

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~417.3~~ 307.6.2.1.2 Insulation.

[F] ~~417.4~~ 307.6.2.1.3 Fire protection.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Drying rooms often involve the use of materaials with hazardous characteristics and must be addressed by their classification as such and the quantities of such materials when they exceed the exempt quantities. By moving the provisions from Chapter 4 to the hazardous materaials classifications, the code user will better understand the link with these provisions.

Cost Impact: Will not increase the cost of construction
Because there is no technical change to the code requirements, there will be no increase in the cost of construction.

G66-15 : [F] 417-COLLINS4820

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This is repeating provisions in Mechanical code and may not need to be in the IBC at all.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, the Preview Group, representing The American Institute of Architects (

)

requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for a drying room or dry kiln that include requirements for such rooms are not referenced anywhere in the building code. While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy classification for high-hazrd occupancies. We believe that much confusion and failure to understand how the code intends to be applied to the hazards associated with these devices can be eliminated by placing the provisions in Section 417 in Section 307.

G66-15

G67-15

418, [F]307.1.3 (New), [F] 418.1, [F] 418.2, [F] 418.3, [F] 418.4, [F] 418.5, [F] 418.6

Proposed Change as Submitted

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete and substitute as follows:

~~**SECTION 418**~~
~~**ORGANIC COATINGS**~~

Add new text as follows:

[F]307.1.3 Organic coatings. Manufacturing of organic coatings shall be done only in buildings in compliance with Sections 307.1.3.1 through 307.1.3.6.

Revise as follows:

[F] ~~418.1~~ 307.1.3.1 Building features.

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~418.2~~ 307.1.3.2 Location.

[F] ~~418.3~~ 307.1.3.3 Process mills.

[F] ~~418.4~~ 307.1.3.4 Tank storage.

[F] ~~418.5~~ 307.1.3.5 Nitrocellulose storage.

[F] ~~418.6~~ 307.1.3.6 Finished products.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Organic coatings are specifically part of the hazardous materials requirements and with this change are moved to Section 307 where all the criteria are located for identifying such materials. With this change once the code user is clear that the materials are hazardous, the requirements will be located in the same section making it clear what is necessary as a result.

Cost Impact: Will not increase the cost of construction
Because there are not changes to the technical requirements of the code for organic coatings, there will be no change in the cost of construction as a result of this

change.

G67-15 : 418-COLLINS5972

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, the Preview Group, representing The American Institute of Architects ()

requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for organic coatings that include requirements for pits and basements, mixed occupancies, processing, tank storage, etc. are not referenced in the *IBC.* Many of the characteristics associated wtih organic coatings parallel hazardous, it isn't clear what is the appropriate classification; H or F.
While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy classification for high-hazrd

occupancies. We believe that much confusion and failure to understand how the code intends to be applied to hazardous conditions can be eliminated by placing the provisions in Section 418 in Section 307.

G67-15

G68-15

419, 419.1, 419.1.1, 419.2, 419.3, 419.3.1, 419.3.2, 419.4, [F] 419.5, 419.6, 419.7, 419.8, 419.9

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 419**~~
~~**LIVE/WORK UNITS**~~

Revise as follows:

~~**419.1**~~ **510.10** ~~**General**~~ **Live/Work units.** A *live/work unit* shall comply with Sections ~~419.1~~ 510.10.1 through ~~419.9~~ 510.10.9.

> **Exception:** Dwelling or sleeping units that include an office that is less than 10 percent of the area of the *dwelling unit* are permitted to be classified as *dwelling units* with accessory occupancies in accordance with Section 508.2.

~~**419.1.1**~~ **510.10.1 Limitations.**

(The text of this section and subsequent sections would be unchanged except to update section references.).

~~**419.2**~~ **510.10.2 Occupancies.**

~~**419.3**~~ **510.10.3 Means of egress.**

~~**419.3.1**~~ **510.10.3.1 Egress capacity.**

~~**419.3.2**~~ **510.10.3.2 Spiral stairways.**

~~**419.4**~~ **510.10.4 Vertical openings.** .

[F] ~~**419.5**~~ **510.10.5 Fire protection.**

~~**419.6**~~ **510.10.6 Structural.**

~~**419.7**~~ **510.10.7 Accessibility.** .

~~**419.8**~~ **510.10.8 Ventilation.**

~~**419.9**~~ **510.10.9 Plumbing facilities.**

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

Live/work units, which perhaps a special subclassification of residential occupancy is in fact at part of the special provisions in Chapter 5 for mixed uses that are not separated. Section 510 is titled special provisions and is where the live/work provisions should also be found.

Cost Impact: Will not increase the cost of construction
No technical changes are made to the requirements for live/work and will not change how the code applies and will cause no increase in cost of construction.

G68-15 : 419.1-COLLINS4822

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He beleives that their location in Chapter 4 results in them being either overlooked or found late in the process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements a use or building feature before proceding throught the rest of the code to determine allowed height, area, construciton types, and fire protection requirments found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or specialized set of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.
Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This proposal was addressing live/work units. The proponent made the case that live/work units are simply a specialized set of mixed occupancy requirements. Mixed occupies are generally addressed in Section 508 with specialized designs contained in Section 510. Consistent with previous actions in the series, the committee choose to retain the Chapter 4 location.

Assembly Motion: As Submitted
Online Vote Results: Failed
Support: 10.47% (36) Oppose: 89.53% (308)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, the Preview Group, representing The American Institute of Architects (

)

requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for live-work units that include requirements for the means of egress, vetical openings fire suppression, accessibility, plumbing fixtures, etc.
While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the exceptions for mixed use provisions in the code. We believe that much confusion and failure to understand how the code intends to be applied to hazardous materials can be eliminated by placing the provisions in Section 419 in Section 510. Section 510 includes similar exceptions for horizontal separation, S-2 garages associated with other occupancies, R-1 and R-2 buildings and their type of construction and multiple buildings over a platfom. Live-work units share many of the same interaction as these conditions that are covered in Section 510 for "special provisions" associated with height and area.

G68-15

G69-15

308.3.5 (New), 308.3.6 (New), 308.3.7 (New), 308.3.8 (New), 308.3.8.1 (New), 310.3 (New), 310.4 (New), 310.5 (New), 420, 420.1, 420.2, 420.3, 420.4, 420.4.1, [F] 420.5, [F] 420.6

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete and substitute as follows:

~~SECTION 420~~
~~GROUPS I-1, R-1, R-2, R-3 AND R-4~~

~~**420.1 General.** Occupancies in Groups I-1, R-1, R-2, R-3 and R-4 shall comply with the provisions of Sections 420.1 through 420.6 and other applicable provisions of this code.~~

~~**420.2 Separation walls.** Walls separating *dwelling units* in the same building, walls separating *sleeping units* in the same building and walls separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *fire partitions* in accordance with Section 708.~~

~~**420.3 Horizontal separation.** Floor assemblies separating *dwelling units* in the same buildings, floor assemblies separating *sleeping units* in the same building and floor assemblies separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *horizontal assemblies* in accordance with Section 711.~~

~~**420.4 Smoke barriers in Group I-1, Condition 2.** Smoke barriers shall be provided in Group I-1, Condition 2, to subdivide every story used by persons receiving care, treatment or sleeping and to provide other stories with an occupant load of 50 or more persons, into no fewer than two smoke compartments~~
~~. Such stories shall be divided into smoke compartments with an area of not more than 22,500 square feet (2092 m^2) and the distance of travel from any point in a smoke compartment to a smoke barrier door shall not exceed 200 feet (60 960 mm). The smoke barrier shall be in accordance with Section 709.~~

~~**420.4.1 Refuge area.** Refuge areas shall be provided within each smoke compartment. The size of the refuge area shall accommodate the occupants and care recipients from the adjoining smoke compartment. Where a smoke compartment is adjoined by two or more smoke compartments, the minimum area of the refuge area shall accommodate the largest occupant load of the adjoining compartments. The size of the refuge area shall provide the following:~~

~~1. Not less than 15 net square feet (1.4 m^2) for each care recipient.~~

~~2. Not less than 6 net square feet (0.56 m^2) for other occupants.~~

~~Areas or spaces permitted to be included in the calculation of the refuge area are corridors, lounge or dining areas and other low hazard areas.~~

~~**[F] 420.5 Automatic sprinkler system.** Group R occupancies shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.8. Group I-1 occupancies shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.6. Quickresponse or residential automatic sprinklers shall be installed in accordance with Section 903.3.2.~~

~~**[F] 420.6 Fire alarm systems and smoke alarms.** Fire alarm systems and smoke alarms shall be provided in Group I-1, R-1, R-2 and R-4 occupancies in accordance with Sections 907.2.6, 907.2.8, 907.2.9 and 907.2.10, respectively. Single- or multiple-station smoke alarms shall be provided in Groups I-1, R-2, R-3 and R-4 in accordance with Section 907.2.11.~~

Add new text as follows:

308.3.5 Separation walls and horizontal assemblies. Walls or floor assemblies separating I-1 dwelling units in the same building, walls separating I-1 sleeping units in the same building and walls separating I-1 dwelling or sleeping units from other occupancies contiguous to them in the same building shall be constructed as fire partitions in accordance with Section 708 and horizontal assemblies in accordance with Section 711.

308.3.6 Automatic sprinkler system Group I-1 occupancies shall be equipped throughout with an automatic sprinkler system in accordance with Seciton 903.2.6. Quickresponse or residential automatic sprinklers shall be installed in accordance with Section 903.3.2.

308.3.7 Fire alarm systems and smoke alarms 308.3.7 Fire alarm systems and smoke alarms. Fire alarm systems and smoke alarms shall be provided in Group I-1 occupancies in accordance with Sections 907.2.6.1. Single or multiple-station smoke alarms shall be provided in Groups I-1 in accordance with Section 907.2.11.2.

308.3.8 Smoke barriers in Group I-1, Condition 2 Smoke barriers shall be provided in Group I-1, Condition 2, to subdivide every story used by persons receiving care, treatment or sleeping and to provide other stories with an occupant load of 50 or more persons, into no fewer than two smoke compartments.

Such stories shall be divided into smoke compartments with an area of not more than 22,500 square feet (2092 m^2) and the distance of travel from any point in a smoke compartment to a smoke barrier door shall not exceed 200 feet (60 960 mm). The smoke barrier shall be in accordance with Section 709.

308.3.8.1 Refuge area Refuge areas shall be provided within each smoke compartment. The size of the refuge area shall accommodate the occupants and care recipients from the adjoining smoke compartment. Where a smoke compartment is adjoined by two or more smoke compartments, the minimum area of the refuge area shall accommodate the largest occupant load of the adjoining compartments. The size of the

refuge area shall provide the following:
1. Not less than 15 net square feet (1.4 m^2) for each care recipient.
2. Not less than 6 net square feet (0.56 m^2) for other occupants.

Areas or spaces permitted to be included in the calculation of the refuge area are corrid ors, lounge or dining areas and other low-hazard areas.

310.3 Separation walls and horizontal assemblies Walls or floor assemblies separating R-1 dwelling units in the same building, walls separating R-1, R-2, R-3 and R-4 sleeping units in the same building and walls separating R-1, R-2, R-3 and R-4 dwelling or sleeping units from other occupancies contiguous to them in the same building shall be constructed as fire partitions in accordance with Section 708 and horizontal assemblies in accordance with Section 711.

310.4 Automatic sprinkler system Group R-1, R-2, R-3 and R-4 occupancies shall be equipped throughout with an automatic sprinkler system in accordance with Seciton 903.2.8. Quickresponse or residential automatic sprinklers shall be installed in accordance with Section 903.3.2.

310.5 Fire alarm systems and smoke alarms Fire alarm systems and smoke alarms shall be provided in Group R-1, R-2 and R-4 occupancies in accordance with Sections 907.2.8, 907.2.9 and 907.2.11 respectively. Single or multiple-station smoke alarms shall be provided in Groups R-2, R-3 and R-4 in accordance with Section 907.2.11.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
I-1, R-1, R-2, R-3 and R-4 have similarities but differences as well and putting them all in one section can be confusing. This change moves them into two parts of Chapter 3 where the I-1 Group is classified and the provisions for compartments are more appropriately identified. The R occupancies are moved into the R Group where the requirements for separation are more easily found and applied appropriately.

Cost Impact: Will not increase the cost of construction
No technical changes are made by this code, simply moving provisions from one part of the code to another, not increasing the cost of construction.

G69-15 : 420-COLLINS4823

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another

location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He beleives that their location in Chapter 4 results in them being either overlooked or found late in the process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements a use or building feature before proceding throught the rest of the code to determine allowed height, area, construciton types, and fire protection requirments found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or specialized set of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.
Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee.on this item. This proposal was addressing Section 420 which address specific requirements which are clearly based on the specifc occupancies listed. The proponent made the case occupancy driven requirements should be found in Chapter 3 with the listing of the occupancy. Consistent with previous actions in the series, the committee choose to retain the Chapter 4 location.

Assembly Motion: **As Submitted**
Online Vote Results: **Failed**
Support: 12.28% (42) Oppose: 87.72% (300)
Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, the Preview Group, representing The American Institute of Architects (
)
requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for institutional and residential occupancies that include requirements for specific application and required separations, alarms and detection devices, fire and smoke barriers, special egress, etc. are only referenced in Section 508.2.4 stating:

> *508.2.4 Separation of occupancies.*
> *No separation is required between accessory occupancies and the main occupancy.*
>
> *Exceptions:*
>
> *1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.4.*

2. Group I-1, R-1, R-2 and R-3 dwelling units and sleeping units shall be separated from other dwelling or sleeping units and from accessory occupancies contiguous to them in accordance with the requirements of Section 420.

Similarly a reference is found in Section 508 regarding mixed use and occupancy for required separation is Table 508.4.

a See Section 420.

While the Code Change Committee rejected this proposal, there was support for this change as it is occupancy specific and the requirements should relate closely to the scoping provisions in Chapter 3 for the occupancy classification for institutional occupancies. We believe that much confusion and failure to understand how the code intends to be applied to hazardous materials can be eliminated by placing the provisions in Section 416 in Sections 308 for institutional and 310 for residential.

G69-15

G70-15

421, [F] 421.1, [F] 421.2, [F] 421.3, [F] 421.4, [F] 421.4.1, [F] 421.4.2, [F] 421.5, [F] 421.6, [F] 421.6.1, [F] 421.6.2, [F] 421.6.3, [F] 421.6.4, [F] 421.7, [F] 421.8

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 421**~~
~~**HYDROGEN FUEL GAS ROOMS**~~

Revise as follows:

[F] ~~421.1~~ 509.5 ~~General~~ Hydrogen fuel gas rooms. Where required by the *International Fire Code*, hydrogen fuel gas rooms shall be designed and constructed in accordance with Sections ~~421.1~~ 509.5.1 through ~~421.7~~ 509.5.7.

[F] ~~421.2~~ 509.5.1 Definitions.

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~421.3~~ 509.5.2 Location.

[F] ~~421.4~~ 509.5.3 Design and construction.

[F] ~~421.4.1~~ 509.5.3.1 Pressure control.

[F] ~~421.4.2~~ 509.5.3.2 Windows.

[F] ~~421.5~~ 509.5.4 Exhaust ventilation.

[F] ~~421.6~~ 509.5.5 Gas detection system.

[F] ~~421.6.1~~ 509.5.5.1 System design.

[F] ~~421.6.2~~ 509.5.5.2 Gas detection system components.

[F] ~~421.6.3~~ 509.5.5.3 Operation.

[F] ~~421.6.4~~ 509.5.5.4 Failure of the gas detection system.

[F] ~~421.7~~ 509.5.6 Explosion control.

[F] ~~421.8~~ 509.5.7 Standby power.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters

and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

Hydrogen fuel gas rooms are listed as incidental uses in Table 509 of the IBC and the IFC when not an H occupancy. This change simply moves it from Chapter 4 and puts it into the requirements for indicental uses in Chapter 5 making the application of the code easier to understand and easier for appropriate application for the user.

Cost Impact: Will not increase the cost of construction
This change will simply clarify how these rooms, once identified as incidental must be constructed, and will not increase the cost of construction.

G70-15 : [F] 421-COLLINS4825

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, the Preview Group, representing The American Institute of Architects (

)

requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for hydrogen fuel gas rooms that include requirements for their design and construction exhaust, gas detection, failures and explosion control, etc. are referenced in Section 706.2 of the IFC.
While the Code Change Committee rejected this proposal, there was support for this change as it is referenced only as an incidental use, but no reference is made to the technical requirements. We believe that much confusion and failure to understand how the code intends to be applied to hazardous materials can be eliminated by placing the provisions in Section 421 in Section 509. 509 includes criteria for separation, protection and limitations that comport well with the limitations in Section 421.

G70-15

G71-15

422, 422.1, 422.2, 422.3, 422.3.1, 422.3.2, 422.3.3, [F] 422.4, [F] 422.5

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 422**~~
~~**AMBULATORY CARE FACIILITIES**~~

Revise as follows:

~~**422.1**~~ **304.2** ~~**General**~~ **Ambulatory care facilities.** Occupancies classified as *ambulatory care facilities* shall comply with the provisions of Sections ~~422.1~~ 304.2.1 through ~~422.5~~ 304.2.4 and other applicable provisions of this code.

~~**422.2**~~ **304.2.1 Separation.**

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~**422.3**~~ **304.2.2 Smoke compartments.**

~~**422.3.1**~~ **304.2.2.1 Means of egress.**

~~**422.3.2**~~ **304.2.2.2 Refuge area.**

~~**422.3.3**~~ **304.2.2.3 Independent egress.**

[F] ~~**422.4**~~ **304.2.3 Automatic sprinkler systems.**

[F] ~~**422.5**~~ **304.2.4 Fire alarm systems.**

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Ambulatory facilities are classified as a B occupancy. Being a relatively new occupancy having the specific requirements located in Chapter 4 with no reference to it in Chapter 3 leaves many questions in the code users mind. Moving it here will clearly identify these types of care facilities as a business and include the specific criteria for it in that same section.

By moving the provisions in Chapter 4 for ambulatory care facilities into the the occupancy classification in Chapter 3, the triggers and allowances for ambulatory care will be clear and obvious choices. Correlation of references to new code locations are not included in the proposal but need to be provided by the editorial

staff.

Cost Impact: Will not increase the cost of construction
By moving the provisions for ambulatory care into the occupancy classification it will make the code simpler to understand and apply and will not increase the cost of construction.

G71-15 : [F] 422-COLLINS4869

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This section addresses ambulatory care facilities and the requirements are occupancy driven.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, the Preview Group, representing The American Institute of Architects (

)

requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for storm shelters that include

requirements for comppliance to a standard, emergency operations and Group E occupancies. It doesn't have any tie to any occupancy classification in the IBC and does not explain how it is to be treated. There is no reference to Section 423 anywhere in the IBC.
While the Code Change Committee rejected this proposal, there was support for this change as it is outside the normal application of the code.

G71-15

G72-15

423, 423.1, 423.1.1, 423.2, 423.3, 423.4

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 423**~~
~~**STORM SHELTERS**~~

Revise as follows:

~~**423.1**~~ **504.5** ~~**General**~~ **Storm shelters.** In addition to the requirements of this section and other applicable requirements in this code, storm shelters shall be constructed in accordance with ICC 500.

~~**423.1.1**~~ **504.5.1 Scope.**

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~**423.2**~~ **504.5.2 Definitions.**

~~**423.3**~~ **504.5.3 Critical emergency operations.**

~~**423.4**~~ **504.5.4 Group E occupancies.**

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

Moving the provisions for storm shelters from Chapter 4 into Section 504 will more closely align such structures for their typical location above or below ground. With other changes for structures below ground (underground structures) this will maintain the common location of buildings, their height and their relationship with grade consistent and make it more understandable for code users.

Cost Impact: Will not increase the cost of construction
Moving the provisions for storm shelters from Chapter 4 to Chapter 5 will not affect the cost of construction.

G72-15 : 423-COLLINS4872

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This section addresses storm shelters. The support of FEMA to maintain the provisions in chapter 4 was important to committee members.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, the Preview Group, representing The American Institute of Architects (

)

requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for storm shelters that include requirements for compliance with a standard, emergency operations and Group E installtions. None of them identify the structure as a specific occupancy and there is no reference to Section 423 anywhere in the IBC which tends to fly in the face of how the code works.
While the Code Change Committee rejected this proposal based on FEMA's objection to its being moved, which begs the question of why it is there? We should work toward ascertaining how every element of the code is to be integrated into buildings and what the purpose of the regulations are intended to achieve. Just putting them in the code arbitrarily (Chapter 4) doesn't establish a level of consistency and understanding that is important in a code.

G73-15

424, 424.1, 602.6 (New), 424.2, [F] 424.3, 424.4, 424.5

Proposed Change as Submitted

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 424**~~
~~**CHILDREN'S PLAY STRUCTURES**~~

Delete and substitute as follows:

~~**424.1 Children's play structures.** Children's play structures installed inside all occupancies covered by this code that exceed 10 feet (3048 mm) in height and 150 square feet (14 m^2) in area shall comply with Sections 424.2 through 424.5.~~

602.6 Children's play structures

Children's play structures installed inside all occupancies covered by this code that exceed 10 feet (3048 mm) in height and 150 square feet (14 m^2) in area shall comply with Sections 602.6.1 through 602.6.4.

Revise as follows:

~~424.2~~ 602.6.1 Materials.

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~424.3~~ 602.6.2 Fire protection.

~~424.4~~ 602.6.3 Separation.

~~424.5~~ 602.6.4 Area limits.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
The requirements for children's play area are based solely on the materials they are constructed of and their relationship with the structure in which they are located. Moving these requirements into Chapter 6 where other maerails performance and their relationship with the building is appropriate and more easily understood by code users.

Cost Impact: Will not increase the cost of construction
Moving these provisions with no change will not affect the cost of construction.

G73-15 : 424-COLLINS4879

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This is one of a series of proposals (G49-15 through G75-15) which would systematically relocate all provisions of Chapter 4 of the IBC to another location in the code. The proponent of these changes would locate current Chapter 4 provisions with other code requirements that they are a logical extension. A primary argument by the proponent for the relocation Chapter 4 provisions is to make these various provisions more easily found during the design process. He believes that their location in Chapter 4 results in them being either overlooked or found late in the design process and requiring substantial modifications to a design. The committee in disapproving the series of changes concluded that Chapter 4 provides a convenient location for specialized use and design provisions. It allows designers to start in one location to find unique requirements of a use or building feature before proceding through the rest of the code to determine allowed height, area, construction types, and fire protection requirements found in those specific topic chapters. Contrary to the reason provided by the proponent, the committee felt that Chapter 4 isn't an afterthought in the design process, but is a convenient first stop for specilized requirements. Moving all the provisions of Chapter 4 to other chapters would make other chapters more confusing by adding one or more specialized sets of requirements in the midst of chapters that are relatively straight forward in addressing their topics. There was concern that unique and key provisions found in Chapter 4 could be lost and overlooked if moved to other code locations.

Although none of the series of proposals was approved, some individual proposals found more support that others. While the committee did not support complete elimination of Chapter 4, a case for relocating some provisions was made by a larger minority of the committee. This section addresses children's play structures. Chapter 6 is structure classification, moving this an other things to Chapter 6 would just move the 'dumping' ground of unique provisions.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Collins, the Preview Group, representing The American Institute of Architects (
)
requests Approve as Submitted.

Commenter's Reason: This is one of a series of code changes we submitted to directly link the "special" requirements in Chapter 4 with the technical requirements in various portions of the code on the same subjects. It is our feeling that the code is confusing and even lacking coordination without any references to these special provisions. In this case, the requirements for children's play structures that include requirements for materails, fire protection separation and area limits, that all relate to how this piece of equipment is to be integrated into a building. There is no reference to Section 422 anywhere in the IBC except in Section 402.6.2 for malls.

The Code Change Committee rejected this proposal, indicating that by moving this to Chapter 6, that would become only another dumping ground for various disconnected pieces of the code. While that may be true, we should work toward ascertaining how every element is to be integrated into buildings and what the purpose of the regulations are intended to achieve. Just putting them in the code arbitrarily (Chapter 4) doesn't establish a level of consistency and understanding that is important in a code.

G73-15

G76-15
402.7.6 (New)

Proposed Change as Submitted

Proponent : Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Add new text as follows:

402.7.6 Fire command center For covered mall buildings exceeding 50,000 square feet (4645 m²) a *fire command center* complying with Section 911 shall be provided in a location approved by the fire department.

Reason: The IFC alludes to a fire command center for covered mall buildings in Section 408.11.1. However, the trigger requirement for a covered mall building is not apparent. Base code requirements for covered mall buildings have significant triggers occurring at 50,000 sf. These include emergency voice alarm systems, and emergency power. Section 402.7.5 has requirements for fire department access to controls for sprinklers, HVAC, and "other detection, suppression or control elements shall be identified for use by the fire department." In addition Section 402.7.2 requires smoke control in covered malls with atriums over two stories.

For larger buildings, preplanning the use of fire protection equipment such as hose stations, and the above mentioned equipment will aid in fire department response. Providing the necessary information and equipment controls in one accessible location such as a fire command center, can only aid the response. Without a fire command center there is no requirement to consolidate equipment controls to aid emergency response. This proposal will formalize the requirement alluded to in the fire code for mall buildings over 50,000 sf. and provide a single location for emergency equipment controls and responders to coordinate their efforts.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction by adding a fire command center to certain mall buildings.

G76-15 : 402.7.6 (New)-DIGIOVANNI3816

Public Hearing Results

Committee Action: Disapproved

Committee Reason: While this would result in a consolidation of system controls in one location, full compliance with Section 911 would seem to be overkill. Despite the stated intent of the proponent, the language would only apply to covered malls; leaving application to open malls unclear. Requiring all fire control room systems isn't needed for a single story malls. This may be setting up a conflict between the Fire Code and Building Code.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Stephen DiGiovanni, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov) requests Approve as Submitted.

Commenter's Reason: The IFC alludes to a fire command center for covered mall buildings in Section 403.11.1.2. However, the trigger requirement for a covered mall building is not apparent in the IBC.

Currently, there exists a clear requirement for a fire command center for high-rise buildings in IBC Section 406.4.6, which reads as follows:

[F] 403.4.6 Fire command. A *fire command center* complying with Section 911 shall be provided in a location *approved* by the fire department.

The high-rise version of the fire command center is triggered along with various protection systems. Essentially, as soon as a building is considered a high-rise, a number of emergency system code requirements are triggered, and the fire command center comes with those systems.

In a similar fashion, mall buildings (both covered and open) have emergency systems that are triggered when the covered mall building exceeds 50,000 square feet. These include emergency voice alarm systems, and emergency power. Also, Section 402.7.5 has requirements for fire department access to controls for sprinklers, HVAC, and "other detection, suppression or control elements shall be identified for use by the fire department." In addition Section 402.7.2 requires smoke control, in covered mall buildings only, with atriums over two stories.

Please note that this proposal only includes covered mall buildings, and does not address open mall buildings. While there are many similarities in hazards, as can be seen with the smoke control requirement, it is not as necessary to have all emergency system requirements apply to open mall buildings.

This proposal will formalize the requirement alluded to in the fire code by requiring a fire command center for covered mall buildings over 50,000 sf. and provide a single location for emergency equipment controls and responders to coordinate their efforts.

Public Comment 2:

Proponent : Edward Kulik, representing ICC Building Code Action Commitee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

402.7.6 Fire command center For covered mall buildings exceeding ~~50,000~~ 100,000 square feet (~~4645~~ 9290m^2) a *fire command center* complying with Section 911 shall be provided in a location approved by the

fire ~~department~~ code official.

Commenter's Reason: While the original proposal provides clarification to explicitly require a fire command center for covered mall buildings, the original proposal to trigger this requirement at 50,000 square feet appears too restrictive. This public comment changes the trigger to 100,000 square feet to allow a more balanced approach to this requirement.
Also, this public comment modifies the term "fire department" to "fire code official". The term "fire department" is not common in the I-codes and is not defined, whereas the term "fire code official" is defined and is commonly used throughout the I-codes. Should the membership decide to change the term "fire department" to "fire code official", we suggest an editorial change to IBC Section 403.4.6, to also change the term "fire department" to "fire code official".

G76-15

G77-15
402.8.6.1

Proposed Change as Submitted

Proponent : Robert Davidson, representing Myself (rjd@davidsoncodeconcepts.com)

2015 International Building Code

Revise as follows:

402.8.6.1 Exit passageways. Where *exit passageways* provide a secondary *means of egress* from a tenant space~~, doorways to~~ the *exit* ~~*passageway*~~ passageways shall be ~~protected by 1-hour *fire door assemblies* that are self- or automatic-closing by smoke detection~~ constructed in accordance with Section ~~716.5.9.3~~ 1024.

Reason: The purpose of this proposal is to point the user to all of the code requirements for exit passageways. The 1 hour fire-resistance rating is maintained, for openings Section 1024.5 points the user to Section 716 and applying that portion of the code maintains the requirement for the 1 hour rated fire doors, (see Table 716.5), and maintains the requirement for the smoke activated closure, (see Section 716.5.9.3, Item 3).
There has been cases of confusion in that a user looks at Sections 402.8.6.1 and 402.8.7 and interprets that these are the only sections needed to be complied with for an exit passageway in this occupancy. For example, the application of Section 1024.6 for penetration limitations. With the suggest change the level of protection is unchanged and application of the exit passageway requirements are clarified.

Cost Impact: Will not increase the cost of construction
Since the modification clarifies application of the code there should be a reduction in unnecessary costs associated with correcting erros in construction.

G77-15 : 402.8.6.1-DAVIDSON5504

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The change points the code user to the correct provisions for the design and construction of exit passageways.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Timothy Andres, representing self requests Disapprove.

Commenter's Reason: Code Change G-77 proposes to alter a critical element of how Malls have been built and operated in reference to service of tenants and

distribution of utilities through Exit Passageways. Malls are unique in their operation and rely on servicing of tenants and access of utilities in a common space, loss of this ability would be detrimental to the operation and function of the Mall Building. This public comment is being issued to disapprove this change as it is unsubstantiated and would have a severe impact on new (and potentially existing) Mall Buildings. The unique conditions of a Mall Building must continue to be considered in the code in order to maintain a functioning design, requiring separate tenant egress and stocking would cripple the operation of the mall and its tenants.

Public Comment 2:

Proponent : David Collins, representing The American Institute of Architects (dcollins@preview-group.com) requests Disapprove.

Commenter's Reason: The AIA disagrees with the As Submitted action by the Code Development Committee. This proposal should be disapproved.

The proponent in his Reason statement said, "There has been cases of confusion in that a user looks at Sections 402.8.6.1 and 402.8.7 and interprets that these are the only sections needed to be complied with for an exit passageway in this occupancy. For example, the application of Section 1024.6 for penetration limitations. With the suggested change the level of protection is unchanged and application of the exit passageway requirements are clarified. "

While the proponent has brought up a point that probably needs to be discussed, if it was his intent to correlate and integrate the two sections such that provisions currently in Section 402 fit with those in Section 1024, the proposed language does not do this – at all. As is already recognized in Section 1024.5, exit passageways in mall buildings serve unique functions and are allowed to be designed in a different fashion than other occupancies (i.e., 402.8.7 specifically allows mechanical rooms, electrical rooms, building service areas and service elevators to open directly into exit passageways when separated from the exit passageway and openings are protected). If the types of spaces identified in Section 402.8.7 are allowed to open into an exit passageway, doesn't it follow that the piping and wiring that go along with these spaces, and which typically run through the exit passageway, are also allowed (when of noncombustible or listed materials and with protected penetrations). A single reference to Section 1024 does not provide the necessary level of detail needed to include all these conditions, and will only create additional confusion rather than the "clarity" the proponent wishes to accomplish.

The provisions found in Section 402 for mall buildings came out a multi-year effort by the CABO Board for the Coordination of Model Codes (BCMC) in which they reviewed and researched the design and constructability of covered mall buildings. The fundamentals of the current mall building package found in the 2015 IBC Section 402 were introduced to each of the legacy codes in the mid 1970's (BOCA Basic Building Code Section 432, SBCCI Standard Building Code Section 507 and ICBO Uniform Building Code Chapter 11). Recognizing the commonality of the topic and the need for correlation, the CABO Board for the Coordination of Model Codes (BCMC) created an ad-hoc committee to study covered mall buildings. The result was a comprehensive report issued by BCMC in 1980 that contained the text of a new covered mall section – much of which is still found in the 2015 IBC. It is a unique package of design criteria specific to ONLY mall buildings, and which were, and still are, not associated with other types of buildings.

Therefore to just say that, in this instance, exit passageways in mall building have to comply with generic provisions for exit passageways in Section 1024, with no review or acknowledgement of how exit passageways relate and function in a mall building is inappropriate and will, as stated previously, only add to the confusion the proponent is trying to address. In the Reason statement, the proponent does not

provide a rationale for how Sections 402 and 1024 should be correlated or coordinated to work in concert. He has not brought forth a complete package that will address and coordinate ALL of the unique design features and functions that are associated with an exit passageway in a mall building designed and constructed in accordance with Section 402, with the provisions for a "generic" exit passageways found in Section 1024. Without revisions to both Section 402 and/or 1024, to address the unique functions an exit passageway serves in a mall building, the proposal is incomplete and should not be approved.

Public Comment 3:

Proponent : Joseph Easley, representing Simon Property Group (Joseph.easley@simon.com) requests Disapprove.

Commenter's Reason: Costly and unnecessary

Public Comment 4:

Proponent : Thomas Everett, CBL & Associates Properties, representing CBL & Associates Properties (tom.everett@cblproperties.com) requests Disapprove.

Commenter's Reason: This public comment is made on the code change G-77 proposal to disprove and approve some modified version of code change G-78. Code Change G-77 will greatly adversely impact existing Mall Buildings and new Mall Buildings.

Code change G-77 proposal alters the Mall Building exit passageway scoping section to state the following, "Where exit passageways provide a secondary means of egress from a tenant space, the exit passageway shall be constructed in accordance with Section 1024." Section 1024 requires compliance with the two following requirements that impace the typical design and use of exit passageways in Mall Buildings.

1. Penetrations other than equipment and ductwork necessary for the independent pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and electrical raceway serving the exit passageway and terminiating at steelbox not exceeding 16 square inches are not permitted.

2. An exit passage must not be used for any purpose other than as a means of egress and a circulation path. A circulation path is defined as an exterior or interior way of passageway from one place to another for pedestrians. This would prohibit the use of an exit pasageway for the loading and unloading of tenant spaces which is common operating procedures for mall tenants.

This code change ignores the unique challenges of a Mall Building in which access to utilities in a common space is necessary for the function of a Mall Building. Further, by requiring dedicated exit passageways serving only as a means of egress an alternate design to stock tenant spaces must be designed into Mall Buildings.

Existing shopping malls all around the country have incorporated utility distribution in exit passageways and serviced tenants via exit passageways without any adverse affects. Absolutely no substantiation for these new code requirements/previsions has been provided.

Public Comment 5:

Proponent : Bruce Harrell, representing Simon Property Group requests Disapprove.

Commenter's Reason: The proposed Code Change G-77 will greatly adversely impact existing Mall Buildings and new Mall Buildings.

Public Comment 6:

Proponent : Chris Heaphy, representing Taubman Centers, Inc (cheaphy@taubman.com) requests Disapprove.

Commenter's Reason: These public comments are being submitted by Taubman Centers, Inc. on behalf of itself and its affiliated shopping centers with respect to the proposed code change G 77-15

Proposed Code change G 77-15 changes the Mall Building exit passageway scoping section to state the following, "Where exit passageways provide a secondary means of egress from a tenant space, the exit passageway shall be constructed in accordance with Section 1024." Section 1024 requires compliance with the two following requirements that impact the typical design and use of exit passageways in Mall Buildings:

1. Penetrations other than equipment and ductwork necessary for the independent pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and electrical raceway serving the exit passageway and terminating at steel box not exceeding 16 square inches are not permitted.
2. An exit passageway must not be used for any purpose other than as a means of egress and a circulation path. A circulation path is defined as an exterior or interior way of passageway from one place to another for pedestrians. This would prohibit the use of an exit passageway for the loading and unloading of tenant spaces which is common operating procedures for mall tenants.

This proposed code change does not take into account the unique features of a Mall Building in which access to utilities in a common space is necessary for the function of a Mall Building and its occupants. Further, by requiring dedicated exit passageways serving only as a means of egress an alternate design to stock tenant spaces must be designed into Mall Buildings. This may result in delivers being made through the common areas of the Mall itself and the public areas of the tenant spaces, thus creating a potentially dangerous situation.

Existing shopping malls around the country have incorporated utility distribution in exit passageways and serviced tenants via exit passageways without any adverse effects. No substantiation for these new code requirements/provisions has been provided. At a minimum, the rationale for this proposal should be explained and then we can discuss what, if any, changes should be considered.

Taubman Centers, Inc. will be working with the ICSC to provide additional information at the next round of public hearings to support modification or rejection of the

proposed G-77 proposed code changes.

Public Comment 7:

Proponent : Paul Kalvaitis, Simon Property Group, representing Self requests Disapprove.

Commenter's Reason: Code Change G-77 will negatively impact how new mall buildings are constructed and how existing buildings are renovated.

Public Comment 8:

Proponent : Frederic McCoy, JPRA Architects, representing self (fmccoy@jpra.com) requests Disapprove.

Commenter's Reason: This public comment is made on the code change G-77 proposal to disapprove and approve some modified version of code change G-78. Code Change G-77 will greatly adversely impact existing Mall Buildings and new Mall Buildings.
Code change G-77 proposal alters the Mall Building exit passageway scoping section to state the following, "Where exit passageways provide a secondary means of egress from a tenant space, the exit passageway shall be constructed in accordance with Section 1024." Section 1024 requires compliance with the two following requirements that impact the typical design and use of exit passageways in Mall Buildings:

1. Penetrations other than equipment and ductwork necessary for the independent pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and electrical raceway serving the exit passageway and terminating at steel box not exceeding 16 square inches are not permitted.
2. An exit passageway must not be used for any purpose other than as a means of egress and a circulation path. A circulation path is defined as an exterior or interior way of passageway from one place to another for pedestrians. This would prohibit the use of an exit passageway for the loading and unloading of tenant spaces which is common operating procedures for mall tenants.

This code change ignores the unique challenges of a Mall Building in which access to utilities in a common space is necessary for the function of a Mall Building. Further, by requiring dedicated exit passageways serving only as a means of egress an alternate design to stock tenant spaces must be designed into Mall Buildings.

Existing shopping malls all around the country have incorporated utility distribution in exit passageways and serviced tenants via exit passageways without any adverse affects for many years. This has proven to protect public safety and afford functional operation of the building. The proposed change would compromise function, increase costs, and reduce efficieint space utilization without any solving any problem,and should not be approved.

Public Comment 9:

Proponent : Amy Murdock, representing Code Consultants

Incorporated (amym@codeconsultants.com) requests Disapprove.

Commenter's Reason: On behalf of Code Consultants, Inc. a public comment is being submitted on the code change proposals to disapprove G-77 and approve G-78 (potentially with modifications) to avoid the formal adoption of exit passageway requirements that will CREATE DEFICIENCIES in existing Mall Buildings and GREATLY impact design of Mall Buildings in the future.

Background

Based on the current state of the 2018 International Building Code adoption cycle, the design and use of exit passageways in Mall Buildings will be significantly impacted as it relates to service utilities, operational procedures for stocking retail tenants, and location of stock rooms in relation to exit passageways.

Exit Passageway Code Change

To address the formal interpretation that restricts the design of Mall Building exit passageways, CCI submitted a code change to the ICC for discussion at the public hearings in Memphis, Tennessee. This was one of two proposals submitted that addressed exit passageways within Mall Buildings. The proposed code change (cataloged as G-78) was submitted to add language to the 2018 IBC to specifically permit the existing practice of using exit passageways for the distribution of utilities in Mall Buildings. G-78 was presented and discussed with the committee but was ultimately not approved.

While G-78 was not approved, a code change proposal (cataloged as G-77) that is contradictory to G-78 was approved.

Code Change G-77 is a proposal that alters the exit passageway scoping section to state the following, "Where exit passageways provide a secondary means of egress from a tenant space, the exit passageway shall be constructed in accordance with Section 1024." Section 1024 requires compliance with the two following requirements that impact the typical design and use of exit passageways in Covered Mall Buildings:

1. Penetrations other than equipment and ductwork necessary for the independent pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and electrical raceway serving the exit passageway and terminating at steel box not exceeding 16 square inches are not permitted.
2. An exit passageway must not be used for any purpose other than as a means of egress and a circulation path. A circulation path is defined as an exterior or interior way of passageway from one place to another for pedestrians. This would prohibit the use of an exit passageway for the loading and unloading of tenant spaces which is common operating procedures for mall tenants.

Code Change G-77 ignores the unique challenges of a Mall Building by requiring dedicated exit passageways that can only serve as a means of egress thus requiring an alternate design to stock tenant spaces and an alternate means to distribute building utilities.

Reality: Tenants must have second exits to some form of a corridor or exit passageway; in one-level, two-level or three-level malls. Mall concourses must have exits reachable within 200 feet of travel. Therefore, exit passageways have always been and will continue to be necessary in malls. If mall exit passageway systems can no longer distribute utilities, act as a means of service to tenants, and even act as a second exit from a tenant space, thousands of existing malls will be considered deficient and all new construction greatly impacted. It is not uncommon for the entire length of a mall exterior wall to serve as an exit passageway on all three levels of a mall.

Tenant spaces are designed such that sales floors front the concourse and tenant stockrooms are located in the rear of the store. In most cases, the tenant stockrooms open directly to the exit passageway using the provisions of 2015 IBC

Section 1016.2, Item 5, Exception 2. Code Change G-77 would definitely eliminate tenant stockrooms from opening onto an exit passageway.

2015 IBC Section 402.8.7 permits openings from service rooms into exit passageways. Code Change G-77 would prohibit the use of the exit passageway as a means to distribute the actual utility service to these permitted rooms. In essence Code Change G-77 would require all utilities to be distributed within tenant spaces or within an entirely new corridor that would parallel the exit passageway. Utilities can't be distributed within tenant spaces as the mall owner does not have rights to the tenant space floor area for building systems/utilities. Incorporating a parallel corridor would decrease a tremendous amount of real estate and would still yield a challenge since tenants would still have to exit from the rear of their spaces into a corridor system that would then have a door into the exit passageway system; extremely convoluted means of egress condition considering absolutely NO DATA HAS BEEN PRESENTED TO SUPPORT THIS DRASTIC CODE CHANGE.

Servicing of tenants within a mall building has forever been via the rear service corridor systems; which also function as exit passageways. All loading docks and service elevators are connected to these rear service corridors; again also functioning as exit passageways. 2015 IBC Section 402.8.7 specifically allows service elevators to open onto exit passageways.

Current Practice and Design

Mall buildings are permitted by the IBC to have certain building service rooms open directly into exit passageways. This is permitted for Mall Buildings (not permitted for other types of buildings) because they are unique structures due to the nature of their use. However, the IBC does not specifically address the distribution of utilities in an exit passageway, operational procedures for stocking retail tenants and/or allowing tenant stock rooms to open into an exit passageway.

Utilities are often located within the service corridors at the rear of the tenant spaces, which in most cases, also serve as exit passageways. Although 2015 IBC Section 402.8.7 permits openings from service rooms into exit passageways, the Code does not outline the distribution of utilities within the passageways. Historically, it has been interpreted that the code would allow the distribution of utilities within exit passageways provided that the penetrations are properly protected.

Furthermore, it is common practice for the exit passageways in Mall Buildings to be used for employee access and the distribution of goods to tenants. This is understood to be permitted due to the unique layout and configuration of Mall Buildings and is the logic behind the required increase in passageway width (66 inches; as required through 2015 IBC Section 402.8.6).

Past Code History

Code documentation is attached confirming that the inclusion of utilities in exit passageways and the servicing of tenants via exit passageways have been acceptable for hundreds of mall buildings.

- 1993 BOCA National Building Code (through 1999)
- 1997 Standard Building Code
- NFPA 101 Life Safety Code

Mall Buildings constructed in accordance with International Building Code (i.e. 2000 – 2015 editions) and certain prior codes such as those developed by the Buildings Officials Code Administrators International (BOCA) typically have exit passageways with exposed utility distribution. In addition, the exit passageways are used for normal employee access and for the distribution of goods to tenants. This was an acceptable practice in the other "legacy construction codes" such as the Standard Building Code (SBC) and the Uniform Building Code (UBC). These design elements were permitted based on the unique design challenges of a Mall Building.

International Code Council Opinions & Interpretations

The "typical" utility distribution in exit passageways was validated by the International Code Council (ICC) staff in an opinion letter dated July 29, 2005 that states the

following related to a question posed to the ICC about exposed utilities in exit passageways within Covered Mall Buildings, "You are specifically asking whether the 1 hour fire barrier walls forming the exit passageway can be penetrated by the building's utility components and whether these elements can be exposed within the exit passageway. The answer is Yes."

The justification provided in the opinion points to the fact that Covered Mall buildings have a unique nature (i.e. exterior isolation, interior fire resistance compartments, enhance fire protection systems) that corresponds to allowances such as the exposed piping that would not apply to more conventional buildings.

The letter goes on to recognize the fact that the IBC Commentary notes that the utility components are permitted to penetrate the fire barrier walls of the exit passageways. The letter states that it is obvious that the elements can be exposed within the exit passageway as long as they are property protected and as long as the required minimum egress widths / heights are maintained.

The 2015 IBC Commentary further supports the opinion letter received.

As an update to this 2005 opinion letter from the ICC, a formal interpretation request was submitted to further clarify that utilities were permitted to be exposed in exit passageways within Mall Buildings. Without significant changes to the International Building Code since the opinion letter from 2005, the formal interpretation response noted a change in ICC's stance on this topic. The formal interpretation stated that the intent of the code was to not permit utilities to be exposed to the exit passageway. The interpretation of the ICC was that the code, "does not intend for mechanical equipment such as wiring, conduit, water supply or other building utilities to be located within the exit passageway itself...the intent is that they are not within the same space."

The formal interpretation issued absolutely ignored the unique aspect of covered mall buildings, the past 20 years of construction in malls, and the fire statistics related to Mall Buildings.

Fire Statistics in Shopping Malls

Data Concerning Shopping Mall Fires

Using data from the National Fire Incident Reporting System (NFIRS) 5.0 and NFPA Surveys during the period 2007 to 2011, a table describing fire experience in mercantile occupancies is presented as an attachment.

Fixed property use code #585 (shopping centers/malls prior to the year 2000) is now included in the included in the fixed property use #580 (general retail, other). In discussions with NFPA this consolidation was done since the need to segregate out malls was no longer a concern since the number of fires drastically reduced.

A total of 710 fires were reported for the period of 2007-2011 for the fixed property use #580 (general retail, other). Note that, in the reported fires:

1. One death was recorded.
2. Minimal (ten) injuries were recorded.
3. Estimated property loss of $56 million.

Using data from the NFIRS during the period 1992 to 1996, a table describing fire experience in mercantile occupancies is presented as an attachment.

A total of 630 fires were reviewed for the period of 1992 to 1996. Automatic sprinklers were present in approximately 63% of those buildings. This data indicates that most shopping mall centers are protected by automatic sprinkler systems. Note that, in the reported fires:

1. No deaths were recorded.
2. Minimal injuries were recorded.
3. Property damage per incident was less than $3,000 for buildings provided with an automatic sprinkler system and $21,000 for the damage per total

number of incidents.

Note that in 1992-1996, 630 fires were reported specific to shopping centers; in 2007-2011, 710 fires were reported to "general retail, other" structures. Unfortunately a specific breakdown for shopping malls is no longer available; it can be fairly assumed that the number of fires has decreased.

Although somewhat dated, statistical data developed from the NFPA's extensive fire database for the time period of 1980 to 1996 is presented as an attachment. This information was compiled from national estimates of fires reported to fire departments.

The estimates were based upon data from NFPA's annual stratified random sample survey and the US Fire Administrations (USFA) National Fire Incident Reporting System (NFIRS). They were combined using statistical methods developed by analysts at the NFPA, USFA and the US Consumer Product Safety Commission.

The data reflects a fire history, from 1980 through 1996 for structure fires in all shopping malls however NFPA was not able to delineate the experience of open malls versus closed mall, sprinklered malls versus unsprinklered malls, malls versus department stores, or firefighter injury experience.

The experience regarding the total number of fires slightly increased during that period of time. It is important to note that this conclusion is based on the strong possibility that the number of shopping mall properties has greatly increased and the data seems to reflect this.

The graph for civilian deaths has decreased and injuries remained essentially the same. The amount of property damage when adjusted to 1998 dollars, indicates that except for 1986, an unusual year, the level of damage has varied greatly. A trend line indicates the property damage has increased most likely due to the increase in the number of malls. The amount of property damage per shopping mall fire slightly increased over the 20 year period.

We conclude from this information that the fire experience in shopping malls as a whole does not reflect any change in the hazard presented. Updated data is being obtained for the public hearings and will be noted if permitted.

In summary, the fire hazard potential of all shopping malls has remained essentially the same if not better. When NFIRS removed the fixed property use code #585 specific to shopping centers, the malls were then "lumped into" a larger pool of retail. This confirms that mall fires were decreasing.

Shopping Mall Fire Narratives

The NFPA Fire Incident Data Organization database identifies large fires, unique fires, or fires in which sprinkler systems are significant. An NFPA report issued in June 2014 is attached which summarizes numerous shopping mall fire incidents.

NONE of the fire conditions related to distribution of utilities in exit passageways and the properties properly protected by fire sprinklers properly protected the building.

In Texas, 2013 assumed, an arson fire in a discount store of a strip mall was controlled by six (6) sprinklers. Property damage was estimated to be $180,000 and no injuries were reported.

In Washington, 2013 assumed, a non-sprinklered, wood constructed strip mall was destroyed when a tanning bed exploded and fire fighters were unable to contain the fire.

In Arizona, 2013 assumed, an overloaded extension cord ignited a fire that was controlled by a sprinkler until fire fighters arrived to extinguish it. Property damage was estimated to be $30,000 and no injuries were reported.

In Virginia, 2012 assumed, an electrical fire from improperly installed circuits arced and ignited walls and stored items during a day that a tenant in a strip mall was not open. The building was not protected by a fire sprinkler system. Property damage was estimated to be $1 million; contents damage $100,000 and four (4) fire fighter injuries were reported (heat exhaustion and cut on hand).

In Missouri, 2011 assumed, a fire in a storage room of a children's theater in a

shopping mall occurred. The fire was contained by the fire sprinkler system until fire department arrived and extinguished the fire. Property damage was estimated to be $2,500 and no injuries were reported.

In Illinois, 2011 assumed, a pile of oily rags in a storage area of a strip mall ignited and burned until a sprinkler operated and confined the fire. Property damage was estimated to be $2,000 and no injuries were reported.

In Pennsylvania, 2010 assumed, cardboard boxes ignited and the fire was confined by a single sprinkler until the fire department arrived to extinguish it. Property damage was estimated to be $50,000 and no injuries were reported.

In Tennessee, 2010 assumed, a fire in a housekeeping break room was controlled/confined by the fire sprinkler system until the fire department arrived to extinguish it. Property damage was estimated to be $10,000 and no injuries were reported.

In Florida, 2010 assumed, a candle left burning unattended ignited a fire that was controlled/confined by the fire sprinkler system until the fire department arrived to extinguish it. Property damage was estimated to be $1,000.

In California, 2010 assumed, an arson fire occurred in a two-story shopping mall. For an undocumented reason, a mall employee shut down the fire sprinkler system for 71 minutes; once turned back on 200 sprinklers activated. Fire doors, watercurtain and fire walls were effective in stopping the fire from spreading to other stores. To further complicate matters, a bomb threat had been received which delayed fire department ations. Property damage was estimated to be $110 million.

In Utah, 2009 assumed, welding work ignited a decorative tree within a mall. The building was protected with a fire sprinkler system. A large amount of smoke yielded the majority of damage. Structural damage was estimated at $25,000 while smoke damage was estimated at $1,175,000.

In Kansas, 2009 assumed, a fire within a nonsprinklered, single-story mall spread for an undeteremined time was controlled through the inclusion of fire walls and extinguished by the fire department. Property damage was estimated to be $1.5 million, content damage at $2.5 million, and no injuries were reported.

Other searches available at the time this public comment was generated included a NFPA database search from 1980 until 1998 and found eight covered mall building fires. The following is a short summary of each fire in the database query result.

NONE of the fire conditions related to distribution of utilities in exit passageways and the properties properly protected by fire sprinklers properly protected the building.

Covered Mall Buildings with Automatic Sprinkler Protection

In New Jersey, in 1995, children started a fire in a shopping mall in which one sprinkler confined and extinguished the fire. Property damage was not estimated and no injuries were reported.

In Colorado, in 1994, an overload or short in extension cords caused a fire in which four sprinklers confined and extinguished the fire. Property damage was not estimated and no injuries were reported.

In California, in 1993, an overhead fan in a stockroom was left on all night and ignited paper products on a shelf nearby. A single sprinkler confined and extinguished the fire. Property damage was estimated to be $175,500 and no injuries were reported.

In Florida, in 1991, a fire was found in a shipping crate. A sprinkler directly above the crate confined and extinguished the fire. Property damage was estimated at $150,000 and no injuries were reported.

In California, in 1990, the fire department responded to a waterflow alarm at a two-story shopping center. A wall fronting on a trash dumpster was found burning. Two sprinklers in a space above the ceiling tiles confined and extinguished the fire. Direct property damage was estimated at $36,000 due mostly to smoke odor and water damage. One firefighter suffered lower back pain at this fire.

In Wisconsin, a fire occurred in the ceiling of a shopping mall in 1987. A sprinkler system provided complete coverage of the building but not the combustible concealed space between the ceiling and roof deck. The sprinkler system activated when drop fires began and it prevented further fire extension. Property damage was estimated at $1.7 million, seven firefighters were treated for heat exhaustion and smoke inhalation.

In Florida, a golf cart fire occurred in the storage area of a one-story shopping mall in 1990. Sprinklers operated, confined and extinguished the fire. Property damage was estimated at $1,000 and no injuries were reported.

Anchor Stores/Theaters Attached to the Covered Mall Buildings with Automatic Sprinkler Protection

In Michigan, in 1988, a fire was started in an anchor store storage space. Three sprinklers confined the fire until the fire department could fully extinguish the fire. Property damage was estimated at $279,000, two civilians suffered smoke inhalation and five firefighters were injured.

In California, in 1984, a fire occurred during welding in an interior wall under construction at a sound barrier in a theater. The sprinkler protection in this area was reduced during the theater renovations. Property damage was estimated at $1,000,000 and no injuries were reported.

A variety of fire journals have also been researched. The journals identify and describe large fires which have occurred. The following is a short summary of each fire which was published in the fire journals.

In New Jersey, a fire started in an unoccupied storage area of a department store in 1992. A single sprinkler activated and almost completely extinguished the fire. Property damage was estimated at $26,000 and no injuries were reported.

In 1990, a fire had been burning for hours before a passerby called 911 to report the fire. An investigation revealed the fire was arson. No suppression system was provided in the mall. However, the mall area was largely noncombustible and therefore, flame spread was not a major contributing factor. Heat and smoke damage was considerable throughout the structure and direct property damage was estimated at $1,000,000. No injuries were reported.

Other Retail Properties not Considered a Covered Mall Building with Automatic Sprinkler Protection

In Nevada, many fires were started by rioters in 1993. When firefighters arrived at the one-story mall, which housed food/clothing stores, post office, medical offices and professional offices, the sprinklers were controlling the fire in the clinic which was the area of fire origin. Gun shots and sniper attacks hampered the firefighters ability to extinguish the fire. Property damage was estimated at $2,000,000 and no injuries were reported and one civilian was found dead.

Mall Buildings and Anchor Stores Non-Sprinklered or Partially Sprinklered

In New York, a fire originated in an area of cardboard boxes on a first floor loading dock in 1991. The fire quickly spread before occupants became aware and fire department was notified. Automatic sprinklers were present in the common mall area and in the basement of the building but not in the area of fire origin. Property damage was estimated at $20,000,000, two civilians were killed, and twelve firefighters were injured. Other civilian injuries were reported but not the exact number.

In Pennsylvania, a fire started in a utility room in one of the unsprinklered anchor stores in 1995. The fire then spread above the suspended ceiling assemblies from the store of origin into the mall and other stores. Sprinkler systems were located in two large anchor stores and in the food court of the mall. Property damage was estimated at $60,000,000 and one firefighter was injured.

In Missouri, a suspicious fire occurred in a cabinet of a store in a shopping in 1981. There was no sprinkler system within the shopping mall. Property damage was estimated at $888,000 and three firefighters were treated for smoke inhalation.

In California, a short circuit ignited structural members in the concealed area above a furniture store in a shopping mall in 1988. No automatic suppression system was

provided in the shopping mall. Property damage was estimated at $6,000,000 and no injuries were reported.

In Nevada, a fire of suspicious origin started in the attic of a shopping mall in 1990. No automatic suppression system was provided in the mall. Property damage was estimated at $5.931 million and two firefighters sustained injuries.

In Pennsylvania, a short circuit ignited a wooden side wall in 1989. No automatic suppression system was present. Property damage was estimated at $5,000,000 and two firefighters sustained injuries.

In Colorado, a fire occurred in a drug store roof and spread to a department store in 1984. Sprinklers operated and confined the fire to its area of origin. Property damage was estimated at $15,000,000 and no injuries were reported.

In Georgia, an undetermined fire occurred in a shopping mall in 1983. No automatic suppression system was provided in the mall. The fire had spread through most of the west end of the facility before it was reported to the fire department. Property damage was estimated at $11,000,000 and firefighters suffered minor injuries.

The National Institute of Standards and Technology also researched covered mall fire occurrences and found many of the same incidents. The following two accounts are additional fires not found by NFPA. The articles are attached.

In Pennsylvania, a fire started due to a flammable vapor in metal deck area in 1994. The fire spread via the mall roof. A partial automatic suppression system was present which assisted in limited the fire. The portion of the mall destroyed did not have a sprinkler system. Property damage was estimated at $50,000,000 and no injuries were reported.

In California, a fire was started by juveniles in a gazebo in the mall common area in 1982. The fire quickly spread to the wood overhang above. No automatic suppression system was provided in the mall. Property damage was estimated at $1,000,000 and no injuries were reported.

Bibliography: The BOCA National Building Code/1993 Commentary Volume 1; Building Officials & Code Administrators International, Inc.; 1993; Page 4-7
The BOCA National Building Code/1999 Commentary Volume 1; Building Officials & Code Administrators International, Inc.; 1999; Page 4-7

Standard Building Code 1997 Edition; Southern Building Code Congress International, Inc.; 1997; Page 69

NFPA 101 Life Safety Code 2012 Edition; National Fire Protection Association; 2012; Page 101-306, 101-489

2012 Life Safety Code Hanbook; National Fire Protection Association; 2012; Page 1150

NFPA 101 Life Safety Code 2015 Edition; National Fire Protection Association; 2015; Page 101-323, 101-465

ICC Opinion Letter Request; Terry Schultz, 2005

ICC Staff Opinion Letter Response; Gary Nelson; 2005

2012 IBC Code and Commentary Vlume 1; International Code Council; 2012; Page 4-16

2015 IBC; International Code Council; 2012; Page 56, 57

STructure Fires by Occupancy 2007-2011 Annual Averages; Fire Analysis and Research Division, National Fire Protection Association; 2013

Structure Fires in Shopping Malls Fire by Years and Selected Incidents; Fire Analysis and Research Division, National Fire Protection Association; Marty Aherns; 1999

Selected Published Incidents Involving Shopping Malls; Fire Analysis and Research Division, National Fire Protection Association; 2014

Public Comment 10:

Proponent : Steven Orlowski, representing Building Owners and Managers Association, International (sorlowski@boma.org) requests Disapprove.

Commenter's Reason: While reviewing the actions approved by the committee, BOMA realized that the approval of G 77 would adversaly affect the design and function of the passageways of covered mall occupancies used as a secondary means of egress. Previously, the code would allow these passageways to function and be constructed similar to an exit passage way, without the additional restrictions which would not allow the occupants to use the passageways as areas to unload stock, temporarily store products and be used for other back house operations. This was also dependant that there were the requied number of primary means of egress exits to suffice, without relying on these secondary means of egress. All to often user of the codes fail to realize that these secondary exit passageways are not required by code, but can be used in the event of an emergency provided that they are protected in accordance with the this section. BOMA encourages the assembly to overturn the committee action.

Public Comment 11:

Proponent : Jennifer Platt, Internatiional Council of Shopping Centers , representing International Council of Shopping Centers (jplatt@icsc.org) requests Disapprove.

Commenter's Reason: This public comment is made on behalf of the members of the International Council of Shopping Centers (ICSC) on the code change G-77 proposal to disapprove and approve some modified version of code change G-78. Code Change G-77 will greatly adversely impact existing Mall Buildings and new Mall Buildings.

Code change G-77 proposal alters the Mall Building exit passageway scoping section to state the following, "Where exit passageways provide a secondary means of egress from a tenant space, the exit passageway shall be constructed in accordance with Section 1024." Section 1024 requires compliance with the two following requirements that impact the typical design and use of exit passageways in Mall Buildings:

1. Penetrations other than equipment and ductwork necessary for the independent pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and electrical raceway serving the exit passageway and terminating at steel box not exceeding 16 square inches are not permitted.
2. An exit passageway must not be used for any purpose other than as a means of egress and a circulation path. A circulation path is defined as an exterior or interior way of passageway from one place to another for pedestrians. This would prohibit the use of an exit passageway for the loading and unloading of tenant spaces which is common operating procedures for mall tenants.

This code change ignores the unique challenges of a Mall Building in which access to utilities in a common space is necessary for the function of a Mall Building. Further,

by requiring dedicated exit passageways serving only as a means of egress an alternate design to stock tenant spaces must be designed into Mall Buildings.

Existing shopping malls around the country have incorporated utility distribution in exit passageways and serviced tenants via exit passageways without any adverse effects. Absolutely no substantiation for these new code requirements/provisions has been provided.

ICSC will be working to provide additional information/support and intends to speak at the next round of public hearings to support a modified version of the G-78 code change submittal; or if need modification to the G-77 code change to ensure that proper consideration is given to Covered Mall Buildings and the shopping center industry.

Public Comment 12:

Proponent : William Rowe, representing Self requests Disapprove.

Commenter's Reason: This code change would force properties to change the structure of back of house exit passageways as though they would be utilized for regular and safe customer exit. This would require properties to undertake tasks such as moving generators into ceilings or retrofitting loading docks for pedestrian access. These retrofits would not only be costly and unnecessary, but would likely require use of gross leasable space for this new implementation. There appears no rationale for this proposal. The proposed Code Change G-77 will greatly adversely impact existing Mall Buildings and new Mall Buildings.

Public Comment 13:

Proponent : Alan Schmiedicker, Forest City Commercial Management, representing self requests Disapprove.

Commenter's Reason: This code change would force properties to change the structure of back of house exit passageways as though they would be utilized for regular and safe customer exit. This would require properties to undertake tasks such as moving generators into ceilings or retrofitting loading docks for pedestrian access. These retrofits would not only be costly and unnecessary, but would likely require use of gross leasable space for this new implementation. There appears no rationale for this proposal.

The proposed Code Change G-77 will greatly adversely impact existing Mall Buildings and new Mall Buildings.

G78-15
402.8.7.1 (New)

Proposed Change as Submitted

Proponent : Gene Boecker (geneb@codeconsultants.com)

2015 International Building Code

Add new text as follows:

402.8.7.1 Utility systems in exit passageways The following utility systems and equipment are permitted in mall exit passageways:

1. Electrical wiring in conduit not greater than 480 volts phase-to-phase and 277 volts phase-to-neutral.
2. Exposed low-voltage wiring.
3. Enclosed junction boxes.
4. Fire alarm equipment and wiring.
5. Noncombustible waste piping.
6. Cold/hot water piping.
7. Automatic fire sprinkler piping.
8. Storm water piping.

All penetrations of fire barriers shall be protected in accordance with Section 714.

Reason: The covered mall building provisions (Section 402.8.7) allow for building utility service rooms to open into exit passageways. However, the current text does not specificvally address the distribution of utilities within exit passageways of malls. For maintenance reasons, utilities are typically distributed within the service corridors at the rear of the tenant space which, in most cases, also serves as the exit passagway. Section 402.8.7 permits openings from the service rooms into these exit passageways for other than means of egress but does not address the distribution of those utilities once they leave the service room.

Becase the covered mall provisions for service rooms allow for service rooms to open into exit passageways, similar low-hazard service equipment should be allowed to be distributed in the exit passageways provided that the penetration is properly protected, egress heights are maintained and egress widths are maintained. By referring to Section 714, proper penetration protection of the fire barrier will occur. Egress heights and widths are addressed elsewhere in the code and would not need to be clarified or repeated herein.

Cost Impact: Will not increase the cost of construction
Because the distribution of utilities is currently allowed in a number of cases (one of the legacy codes specifically allowed it) the proposal will not increase costs. The alternatives would requier additional costs for horizontal shaft construction and separate service rooms for utility connections.

G78-15 : 402.8.7.1 (New)-BOECKER5456

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal was seen as watering down the Chapter 10 requirements addressing exit passageways. The list would perhaps be too specific. It doesn't tell the code user how to address similar systems. However the committee felt the laundry list shouldn't be included. Some of the terms used are not consistent with related provisions.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Amy Murdock, Code Consultants, Inc, representing Code Consultants, Incorporated (amym@codeconsultants.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

402.8.7.1 Utility ~~systems~~ distribution in exit passageways. ~~The following utility systems~~ Utility and service lines associated with mechanical rooms, electrical rooms, building service areas, plumbing equipment and service elevators are permitted to be distributed in exit passageways. Natural gas lines and electrical services greater than 600 volts are not permitted in mall exit passageways~~:~~ .

1. ~~Electrical wiring in conduit not greater than 480 volts phase-to-phase and 277 volts phase-to-neutral.~~
2. ~~Exposed low voltage wiring.~~
3. ~~Enclosed junction boxes.~~
4. ~~Fire alarm equipment and wiring.~~
5. ~~Noncombustible waste piping.~~
6. ~~Cold/hot water piping.~~
7. ~~Automatic fire sprinkler piping.~~
8. ~~Storm water piping.~~

All penetrations of fire barriers shall be protected in accordance with Section 714.

Commenter's Reason: Propose to remove the "laundry" list that was focused on at the last hearings.
402.8.7.1 Utility ~~systems~~ distribution in exit passageways ~~The following utility systems and equipment are permitted in mall exit passageways:~~

1. ~~Electrical wiring in conduit not greater than 480 volts phase-to-phase and 277 volts phase-to-neutral.~~
2. ~~Exposed low-voltage wiring.~~
3. ~~Enclosed junction boxes.~~
4. ~~Fire alarm equipment and wiring.~~
5. ~~Noncombustible waste piping.~~
6. ~~Cold/hot water piping.~~
7. ~~Automatic fire sprinkler piping.~~
8. ~~Storm water piping.~~

Utilities and service lines associated with the mechanical rooms, electrical rooms, building service areas, plumbing equipment, and service elevators are permitted to

be distributed in exit passageways. Natural gas lines and electrical services greater than 600 volts are not permitted in mall exit passageways.

All penetrations of fire barriers shall be protected in accordance with Section 714.

Reason for code change remains consistent with original submittal request. Further justification as to the need for this code change is evident in the public comments submitted opposing code change G-77 proposal.

The covered mall building provisions (Section 402.8.7) allow for building utility service rooms to open into exit passageways. However, the current text does not specifically address the distribution of utilities within exit passageways of malls.

For maintenance reasons, utilities are typically distributed within the service corridors at the rear of the tenant space which, in most cases, also serves as the exit passageway.

Section 402.8.7 permits openings from the service rooms into these exit passageways for other than means of egress but does not address the distribution of those utilities once they leave the service room.

Because the covered mall provisions for service rooms allow for service rooms to open into exit passageways, similar low-hazard service equipment should be allowed to be distributed in the exit passageways provided that the penetration is properly protected, egress heights are maintained and egress widths are maintained. By referring to Section 714, proper penetration protection of the fire barrier will occur. Egress heights and widths are addressed elsewhere in the code and would not need to be clarified or repeated herein.

Cost Impact: Will not increase the cost of construction

Because the distribution of utilities is currently allowed in a number of cases (one of the legacy codes specifically allowed it) the proposal will not increase costs. The alternatives would require additional costs for parallel corridors.

G78-15

G79-15
403.1

Proposed Change as Submitted

Proponent : Stephen DiGiovanni, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

403.1 Applicability. *High-rise buildings* shall comply with Sections 403.2 through 403.6.

Exception: The provisions of Sections 403.2 through 403.6 shall not apply to the following buildings and structures:

1. Airport traffic control towers in accordance with Section 412.3.
2. *Open parking garages* in accordance with Section 406.5.
3. The portion of a building containing a Group A-5 occupancy in accordance with Section 303.6. <u>This exception does not apply to uses that are located on an occupied roof.</u>
4. Special industrial occupancies in accordance with Section 503.1.1.
5. Buildings with <u>primary occupancy of</u>:
   - 5.1. A Group H-1 occupancy;
   - 5.2. A Group H-2 occupancy in accordance with Section 415.8, 415.9.2, 415.9.3 or 426.1; or,
   - 5.3. A Group H-3 occupancy in accordance with Section 415.8.

Reason: There is concern about the impact of exceptions 3 and 5.

For exception 3, there are instances where a swimming pool deck is located on the roof of a high-rise building. Being outdoors, those areas could be considered an A-5 occupancy. There is concern about eliminating the high-rise provisions, such as fire alarm coverage, standpipe system coverage, etc, for these areas. In certain jurisdictions, these areas can be used for parties and nightclub uses, which bring with them a higher level of hazard that justifies the application of high-rise provisions, as applicable. This proposal attempts to ensure that the exception does not include roof top uses such as swimming pool decks.

For exception 5, there is concern about any such building that is a portion of a high-rise building. The way that exception 5 reads, if any of these occupancies are collocated with a high-rise building, then the high-rise provisions would not be applicable to the high-rise building. While there is no concern with a H-1 occupancy required to be a separate building by Section 415.7, or a Group H-2 or H-3 occupancy required to be in a detached building per Section 415.8, there is concern about the other H-2 occupancies that may be collocated with a high-rise building. Specifically, LPG facilities described in Section 415.9.2 are not defined, and may be within a high-rise building. Also, NFPA 58 allows bulk LPG facilities to be attached to other structures. The dry cleaning plants described in Section 415.9.3 could be found in larger hotels that have on-site uniform maintenance. Finally, there are larger high-rise complexes that have on-site engineering maintenance staff with the capability of producing combustible dusts in designated maintenance areas. The way exception 5

reads, having any of these H-2 occupancies within or attached to the high-rise building, would seem to say that the high-rise provisions no longer apply. By adding the phrase regarding the primary occupancy, having a minor part of a building be an H-2 occupancy would not negate the applicability to high-rise provisions for that building.

Cost Impact: Will increase the cost of construction
Depending on previous interpretations, this proposal may increase construction costs for certain buildings or portions thereof that were not previously constructed in accordance with the high-rise provisions.

G79-15 : 403.1-DIGIOVANNI3817

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee found the term 'primary occupancy' lacks definition and therefore would render the code unclear in its application if this proposal were to be approved. Earlier in the hearing the committee debated a variety of proposals trying to clarify the use of roofs. This proponent was encouraged to work with proponents of other occupied roof proposals to address that topic.

Assembly Motion: As Submitted
Online Vote Results: Failed
Support: 21.7% (69) Oppose: 78.3% (249)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Kevin McOsker, representing Southern Nevada Chapter of ICC (ktm@ClarkCountyNV.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

403.1 Applicability. *High-rise buildings* shall comply with Sections 403.2 through 403.6.

Exception: The provisions of Sections 403.2 through 403.6 shall not apply to the following buildings and structures:

1. Airport traffic control towers in accordance with Section 412.3.
2. *Open parking garages* in accordance with Section 406.5.
3. The portion of a building containing a Group A-5 occupancy in accordance with Section 303.6. ~~This exception does not apply to uses that are located on an occupied roof.~~
4. Special industrial occupancies in accordance with Section 503.1.1.

5. Buildings with primary occupancy of:
    5.1. A Group H-1 occupancy;
    5.2. A Group H-2 occupancy in accordance with Section 415.8, 415.9.2, 415.9.3 or 426.1; or,
    5.3. A Group H-3 occupancy in accordance with Section 415.8.

Commenter's Reason: The original motion contained two separate modifications. This Pubic Comment has removed the modification for occupied roofs within Group A-5 occupancies. The remaining modification is to clarify that a Group H occupancies would need to be the primary occupancy in order to exempt the high-rise provisions. At present , high-rise building of mixed occupancy that contain a Group H-1, H-2 or H-3 occupancy could be interpreted to be exempt from the high-rise provisions. Putting in an H occupancy in mixed use high rise building, should not exempt the entire building from the high rise provisions.

G79-15

G80-15
403.2.1.1

Proposed Change as Submitted

Proponent : Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

403.2.1.1 Type of construction. The following reductions in the minimum *fire-resistance rating* of the building elements in Table 601 shall be permitted as follows:

1. For buildings not greater than 420 feet (128 000 mm) in *building height*, the *fire-resistance rating* of the building elements in Type IA construction shall be permitted to be reduced to the minimum *fire-resistance ratings* for the building elements in Type IB.
   Exception: The required fire-resistance rating of columns supporting floors shall not be reduced.
2. In other than Group F-1, H, M and S-1 occupancies, the *fire-resistance rating* of the building elements in Type IB construction shall be permitted to be reduced to the *fire-resistance ratings* in Type IIA.
3. The *building height* and *building area* limitations of a building containing building elements with reduced *fire-resistance ratings* shall be permitted to be the same as the building without such reductions.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
During the last code development cycle the committee approved a code change proposal that clarified the allowance for H Group uses within a high-rise buildings. During the hearing, committee members correctly questioned why Group H was not included within Section 403.2.1.1 Exception 2 when Groups of a lesser fire hazard potential were included. Since Section 403.2.1.1 was not part of the proposal before the committee, there was no way to address the issue during last cycle.

This proposal addresses the issue identified by the committee and adds Group H to Section 403.2.1.1 Exception 2 wherein Groups F-1, M, and S-1 are currently restricted from lowering their type of construction.

Cost Impact: Will increase the cost of construction
The cost of construction for a mixed occupancy high-rise containing an H Group occupancy will be increased by elimination of the ability to reduce the construction

type.

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: H occupancies are actually more hazardous that F-1 and S-1 and should be similarly restricted. If the specific H-occupancies should be specified, such could be revised via public comment.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Gregory Nicholls, representing The Preview Group (gnicholls@preview-group.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

403.2.1.1 Type of construction. The following reductions in the minimum *fire-resistance rating* of the building elements in Table 601 shall be permitted as follows:

1. For buildings not greater than 420 feet (128 000 mm) in *building height*, the *fire-resistance rating* of the building elements in Type IA construction shall be permitted to be reduced to the minimum *fire-resistance ratings* for the building elements in Type IB.
   Exception: The required fire-resistance rating of columns supporting floors shall not be reduced.
2. In other than Group F-1, ~~H~~ H-2, H-3, H-5, M and S-1 occupancies, the *fire-resistance rating* of the building elements in Type IB construction shall be permitted to be reduced to the *fire-resistance ratings* in Type IIA.
3. The *building height* and *building area* limitations of a building containing building elements with reduced *fire-resistance ratings* shall be permitted to be the same as the building without such reductions.

Commenter's Reason: The testimony at the hearings noted that additional scrutiny may be appropriate regarding whether or not all Group H occupancies should not be permitted the construction type reduction. Since Group H-4 involves toxics and corrosives and not fire hazards, there is no relevancy to requiring Group H-4 additional fire resistance to the structural frame. The construction type modification would still not be permitted for all other Group H occupancies, all of which do involve regulated fire hazards. The H-1 occupancy is also not listed because H-1 is exempt from the High-rise provisions in Section 403.1 and is limited to a single story, single occupancy, detached building.

G82-15
403.5.2

Proposed Change as Submitted

Proponent : Raymond Grill, Arup, representing Arup (ray.grill@arup.com)

2015 International Building Code

Revise as follows:

403.5.2 Additional interior exit stairway. For buildings other than Group R-1 and R-2 that are more than 420 feet (128 000 mm) in *building height*, one additional *interior exit stairway* meeting the requirements of Sections 1011 and 1023 shall be provided in addition to the minimum number of *exits* required by Section 1006.3. The total width of any combination of remaining *interior exit stairways* with one *interior exit stairway* removed shall be not less than the total width required by Section 1005.1. *Scissor stairways* shall not be considered the additional *interior exit stairway* required by this section.

> **Exception:** An additional *interior exit stairway* shall not be required to be installed in buildings having elevators used for occupant self-evacuation in accordance with Section 3008.

Reason: The requirement for the additional stair in building over 420 was incorporated to address the perceived issue of counter flow in stairs during emergency responder response.
R-1 occupancies have the same occupant loading as R-2 occupancies (200 sf per person). R-2 occupancies should be considered the same as R-2 occupancies for the purpose of this requirement.

Cost Impact: Will not increase the cost of construction
This code change will reduce the construction cost for R-1 occupancies over 420 feet in height.

G82-15 : 403.5.2-GRILL5345

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee supported the change in recognition of the similarity between R-1 and R-2 occupant loads. It was also noted that compared to typical office building highrise buildings where stairways are located in the core of the building, R-1 buildings have stairways which are more remotely located. The occupant load and the building configuration makes the 3rd stairway not needed.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Raymond Grill, representing Arup - self (ray.grill@arup.com) requests Approve as Submitted.

Commenter's Reason: The committee statement supports approval of the proposal. R1 and R2 occupancies have similar occupancy characteristics.

G82-15

G83-15
403.5.2

Proposed Change as Submitted

Proponent : Jonathan Siu, City of Seattle, Department of Planning and Development, representing Washington Association of Building Officials Technical Code Development Committee (jon.siu@seattle.gov)

2015 International Building Code

Revise as follows:

403.5.2 Additional interior exit stairway. For buildings other than Group R-2 that are more than 420 feet (128 000 mm) in *building height*, one additional *interior exit stairway* meeting the requirements of Sections 1011 and 1023 shall be provided in addition to the minimum number of *exits* required by Section 1006.3. The total ~~width~~ capacity of any combination of remaining *interior exit stairways* with one *interior exit stairway* removed shall be not less than the total ~~width~~ capacity required by Section 1005.1. *Scissor stairways* shall not be considered the additional *interior exit stairway* required by this section.

> **Exception:** An additional *interior exit stairway* shall not be required to be installed in buildings having elevators used for occupant self-evacuation in accordance with Section 3008.

Reason: This proposal is a clarification to reflect what we believe was intended when this section was placed into the IBC. In the 2015 code, egress "width" and "capacity" were carefully separated in Chapter 10. "Width" refers to a minimum dimension stated in the code for a particular egress component. "Capacity" now refers to a dimension that is calculated based on an occupant load. It appears that the code change that made this separation did not address this section, and the failure to do so results in a question as to what was intended. We believe that the intent is to maintain the capacity of the remaining stairs. This is not an issue for most buildings that we have dealt with, but if the building has large assembly spaces higher up in the building, it can result in another stair being required.

Cost Impact: Will not increase the cost of construction
This proposal is a clarification of the code. If a jursidiction has been interpreting the code in a way that is consistent with this proposal, there will be no change in cost of construction. If a jurisdiction has been applying the code differently, then there may be an increase in the cost of construction.

G83-15 : 403.5.2-SIU4266

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason:

Assembly Action : None

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

403.5.2 Additional interior exit stairway. For buildings other than Group R-2 that are more than 420 feet (128 000 mm) in *building height*, one additional *interior exit stairway* meeting the requirements of Sections 1011 and 1023 shall be provided in addition to the minimum number of *exits* required by Section 1006.3. The total capacity of any combination of remaining *interior exit stairways* ~~with~~ without considering one *interior exit stairway* ~~removed~~ shall be not less than the total capacity required by Section 1005.1. *Scissor stairways* shall not be considered the additional *interior exit stairway* required by this section.

> **Exception:** An additional *interior exit stairway* shall not be required to be installed in buildings having elevators used for occupant self-evacuation in accordance with Section 3008.

Commenter's Reason: Clarifies intent of this section. Eliminates language which could be interpreted as removing a stairway that is still required.

G83-15

G86-15
403.5.3.1

Proposed Change as Submitted

Proponent : Dave Frable, representing US General Services Administration (dave.frable@gsa.gov)

2015 International Building Code

Delete without substitution:

~~**403.5.3.1 Stairway communication system.** A telephone or other two-way communications system connected to an *approved constantly attended station* shall be provided at not less than every fifth floor in each *stairway* where the doors to the *stairway* are locked.~~

Reason: In a companion proposal, we have proposed to is to re-arrange the provisions of stairway reentry and to provide another option for designers of high-rise buildings when considering building security and locking stairway doors from the stairway side of the enclosure. This code change proposal recognizes stairway re-entry provisions that are currently permitted in the 2015 edition of the National Fire Protection Association (NFPA), Life Safety Code. In the companion proposal Section 403.5.3.1 is retained.
This proposal is to delete Section 403.5.3.1. The intent of the communication system is to provide occupants a means to notify an attended location that the stairway prevents its continued use. However, the subject communication system has no operating instructions and it appears to provide a false sense of assurance that the stairway doors will be unlocked in a timely manner since in all likelihood the person being notified is not within the vicinity of the controls within the building to unlock the stairway doors.

Cost Impact: Will not increase the cost of construction
The intent of this code change will reduce cost of construction due to the elimination of the stairweay communication system.

G86-15 : 403.5.3.1-FRABLE5508

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The suggestion that the broader use and availability of cell phones negates the need to these communications systems was questioned based on the frequent poor reception for such phones within a steel or steel reinforced stairway. Locked stairways need to have some method to allow folks who either intentionally or unintentionally end up in such stairways and need to have someway to communicate with someone outside the stairway to help them return to the building.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Dave Frable, representing US General Services Administration (dave.frable@gsa.gov) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

403.5.3.1 Stairway communication system. A telephone or other two-way communications system connected to an *approved constantly attended station* shall be provided at not less than every fifth floor in each *stairway* where the doors to the *stairway* are locked.
Exception: Stairway doors complying with Section 403.5.3.2.

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403.5.3.2 Stairway door re-entry. The provisions in Section 403.5.3.1 shall not apply, provided that all of the following are met:

1. There shall be no fewer than two levels where it is possible to leave the stairway enclosure to access another exit.
2. There shall be not more than four stories intervening between stories where it is possible to leave the stairway enclosure to access another exit.
3. Re-entry shall be possible on the top story or next-to-top story served by the stairway enclosure, and such story shall provide access to another exit.
4. Stairway doors allowing re-entry shall be identified as such on the stairway side of the door leaf.
5. Stairway doors not allowing re-entry shall be provided with a sign on the stairway side indicating the location of the nearest door opening, in each direction of travel, that allows re-entry or exit.

403.5.3.2.1 Stairway re-entry signage Where the provisions of Section 403.5.3.2 are used, signage on the stairway door leaves shall be required as follows;

1. Stairway doors allowing re-entry shall be identified as such on the stairway side of the door leaf.
2. Stairway doors not allowing re-entry shall be provided with a sign on the stairway side indicating the location of the nearest door opening, in each direction of travel that allows re-entry or exit.

Commenter's Reason: The intent of this code change is to address the need to install a stairway communication system where stairway doors are locked and incorporate stairway door re-entry provisions within a stairway enclosure. Currently the Code requires that when stairway doors are locked from the stairway side a stairway communication system must be installed. The intent of the stairway communication system is to provide occupants a means to notify an attended location that the stairway prevents its continued use. However, the proposed new language in the exception provides an alternative design method that specifies specific stairway door re-entry provisions to permit occupants to re-enter the building to access another stairway on selected floors, eliminating the need for requiring a communication system in the stairway. The proposed stairway re-entry provisions are based on the stairway re-entry provisions that are currently permitted in the 2015 edition of the National Fire Protection Association (NFPA), Life Safety Code.

G87-15
403.6.1

Proposed Change as Submitted

Proponent : Brad Schiffer, representing self (brad@taxis-usa.com)

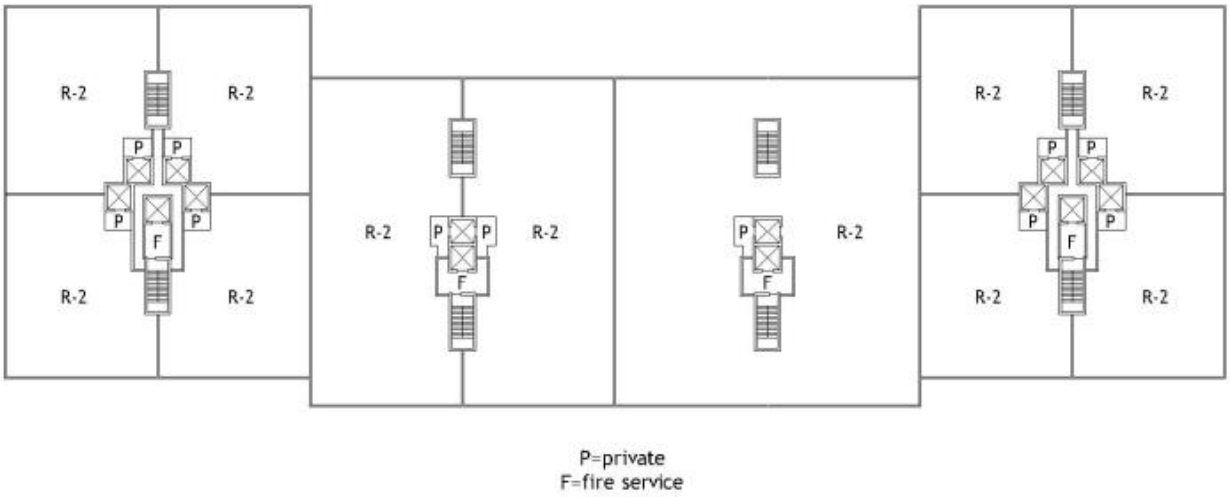
2015 International Building Code

Revise as follows:

403.6.1 Fire service access elevator. In buildings with an occupied floor more than 120 feet (36 576 mm) above the lowest level of fire department vehicle access, no fewer than two fire service access elevators, or all elevators, whichever is less, shall be provided in accordance with Section 3007. Each fire service access elevator shall have a capacity of not less than 3,500 pounds (1588 kg) and shall comply with Section 3002.4.

> **Exception:** One fire service access elevator is required in Group R-2 occupancies with a hoistway group serving not more than six dwelling units.

Reason: Residential buildings with private elevators have multiple elevator groups serving each level. These elevator groups have the private elevators serving the units with a service elevator meeting the Fire Service Access Elevator requirements. Requiring two Fire Service Access Elevators causes at least one of the private elevators to become a Fire Service Access Elevator. This also requires that private elevator to provide Phase 1 recall.
These cores serve a small occupant load.



Cost Impact: Will not increase the cost of construction
Due to the removal of an additional Fire Service Access Elevator this will decrease building costs.

G87-15 : 403.6.1-SCHIFFER4483

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal is unclear and doesn't seem to reflect the reason statement provided by this proponent. The reason implied each unit is served by a private elevator, but no such text is found in the proposal. Further the diagram implies that the fire service access elevator can't be used for regular, daily use by the occupants. Such is a false assumption.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Brad Schiffer, representing self (brad@taxis-usa.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

403.6.1 Fire service access elevator. In buildings with an occupied floor more than 120 feet (36 576 mm) above the lowest level of fire department vehicle access, no fewer than two fire service access elevators, or all elevators, whichever is less, shall be provided in accordance with Section 3007. Each fire service access elevator shall have a capacity of not less than 3,500 pounds (1588 kg) and shall comply with Section 3002.4.

> **Exception:** One fire service access elevator is required in Group R-2 occupancies with a hoistway group serving not more than ~~six~~ four dwelling units per level that have private elevators.

Commenter's Reason:
The intent of the proposed Exception is to allow residential buildings that, in lieu of a single large core serving the whole floor, are designed to have multiple elevator groups, to only require one fire service access elevator.

This type of design has small floor areas that do not require the amount of staging that a full floor would. The other private elevators could be placed in fire service use.

Typical of this type of design is to have the service elevator be the fire service elevator (always available to the residents for "back of house" use) and to provide private elevators which open directly into the dwelling units.

G87-15

G88-15
404.2

Proposed Change as Submitted

Proponent : Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org)

2015 International Building Code

Revise as follows:

404.2 Use. The floor of the *atrium* shall not be used for other than low fire hazard uses and only *approved* materials and decorations in accordance with the *International Fire Code* shall be used in the *atrium* space.

> **Exception:** The *atrium* floor area is permitted to be used for any *approved* use where the individual space, regardless of the ceiling height of the atrium, is provided with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

Reason: This proposal clarifies that the sprinkler exception in Section 404.3 cannot be used when the floor of the atrium is used for other than a low fire hazard use. While NFPA 13 does not limit the height of when sprinklers are used, the exception in 404.3 is mistakenly applied when using this section.

Cost Impact: Will not increase the cost of construction
No technical change made to code.

G88-15 : 404.2-HUGO4517

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee was not convinced that sprinklers are effective in taller atriums even where the use of the atrium for isn't limited.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

404.2 Use. The floor of the *atrium* shall not be used for other than low fire hazard uses and only *approved* materials and decorations in accordance with the *International Fire Code* shall be used in the *atrium* space.

Exception: The *atrium* floor area is permitted to be used for any *approved* use where the individual space, ~~regardless of the~~ and ceiling ~~height~~ of the atrium, ~~is~~ are provided with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

Commenter's Reason: The effectiveness of fire sprinklers over 55 feet in height was not in question in the original proposal. However, NFSA would disagree that sprinklers are not effective at great heights.
The testing that established the 55 feet took place at UL after the McCormick Place Fire in 1967. 55 feet was established because at the McCormick Place fire, sprinklers operated successfully at 50 feet. The UL tests confirmed the 50 feet height and added ten percent. In the 1981 edition of NFPA 101, one of the new special features was a new section dealing with atriums, requiring sprinklers throughout, but permitted the code official to waive the requirements for sprinklers at the top of the atrium when the ceiling was more than 55 feet above the floor. The burden of the decision to exclude sprinklers over 55 feet was put to the code official because testing at that time was limited to 50 feet. The intent was that the code official could waive sprinklers at the ceiling when provided with further testing or proof that sprinklers were not to be effective. This atrium criteria has changed little in the past 30+ years, but the option for the code official to waive sprinklers at the ceiling has morphed into more of the rule than the exception in the legacy codes and in the IBC. The UL testing mentioned above did not use or experiment with different levels of fuel sources. Only the operation of sprinklers was tested, meaning only the standard fuel load of wood, paper and cotton fabric was used to simulate fire. The fuel loads at the atrium floors are certainly much different today and the inclusion of plastics can be more intense than they were almost 50 years ago.

The IBC, as written, would permit the omission of sprinklers at a ceiling with a moderate to high fuel load. This proposal and modification aims to prohibit the omission of ceiling sprinklers when the fuel loads at the atrium floor are in excess of the low hazard according to the IFC.

Sprinklers should not be omitted from high ceilings without a great deal of thought and analysis. The testing that put the 55 foot rule in the code did not include modern day higher hazard fuel loads, such as plastics and synthetics at the atrium floor. The 55 feet rule in the IBC and other codes only applies to atriums. It is certainly proven that in the past 50 years, sprinklers have been installed and proven effective at much higher heights.

G88-15

G89-15

404.2, [F] 404.3

Proposed Change as Submitted

Proponent : Robert Davidson, representing Myself (rjd@davidsoncodeconcepts.com)

2015 International Building Code

Revise as follows:

404.2 Use. ~~The floor of the *atrium* shall not be used for other than low fire hazard uses and only~~ Only*approved* materials and decorations in accordance with the *International Fire Code* shall be used in the *atrium* space.

> ~~**Exception:** The *atrium* floor area is permitted to be used for any *approved* use where the individual space is provided with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~

[F] 404.3 Automatic sprinkler protection. An *approved automatic sprinkler system* shall be installed throughout the entire building. The floor of the atrium shall not be used for any activities that exceed the designed capability of the automatic sprinkler system. Where a smoke control system is present the use and arrangement of the atrium floor shall be consistent with the design of the smoke control system.

Exceptions:

1. That area of a building adjacent to or above the *atrium* need not be sprinklered provided that portion of the building is separated from the *atrium* portion by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.
2. ~~Where the ceiling of the *atrium* is more than 55 feet (16 764 mm) above the floor, sprinkler~~ Sprinkler protection at the ceiling of the *atrium* is not required~~.~~ provided the following criteria are met:

2.1. The ceiling of the atrium is more than 55 feet (16764 mm) above the floor, and

2.2. The floor of the atrium shall not be used for other than low fire hazard uses.

Reason: The purpose of this proposal is to improve the code language to obtain the intended goal of the sections involved. There is no intention of a major technical change or increase in requirements.

The existing Section 404.2 has two requirements, low fire hazard use restriction for the atrium and compliance with the fire code for materials and decorations. Then there is an exception when a sprinkler system is present, however, Section 404.3 mandates a sprinkler system to be present anytime there is an atrium. So the exception would always apply unless exception 2 in Section 404.3 is applied.

The other problem with the language in 404.2 and that the exception could be read to give exception to the fire code provisions on materials and decorations and this creates a conflict with teh fire code.

The proposed changes are to simply have Section 404.2 maintain the language setting up the relationship with the fire code for materials and decorations. The floor use of the atrium is then related directly to the designed capabilities of the sprinkler system and a smoke control system if one is present, both of which is a normal part of the design process for fire protection systems, (i.e., what is the expected fuel load of the atrium). This is done with the language proposed to be added to Section 404.3.

The final modification is to take the language restricting the use of the atrium to low fire hazard uses and attach that requirement to Section 404.3, Exception 2 where the atrium ceiling protection is eliminated.

The intent of the current language is maintained, but technical application of the requirements are clarified with this proposal.

Cost Impact: Will not increase the cost of construction
Since there is no increase in code requirements there will not be an increase in costs.

G89-15 : 404.2-DAVIDSON5297

Public Hearing Results

Committee Action: Disapproved

Committee Reason: While the committee did find merit in the reorganization of these provisions, the remained discomfort in two areas. 1. Is the change to 404.2 changing the intent of that section? Based on testimony that there is no science behind the 55 foot exemption, committee members expressed concern about the sprinkler waiver at any height. An example was provided where the fire isn't at the floor level of the atrium, but at an upper level where those floors might not be 55 below the roof. There needs to be clarification between the potential fire location and the location of any ceiling where sprinklers would be waived.

Assembly Motion: As Modified

Online Vote Results: Failed

Support: 33.13% (109) Oppose: 66.87% (220)

Assembly Action : None

Online Floor Modification:

[F] 404.3 Automatic sprinkler protection. An *approved automatic sprinkler system* shall be installed throughout the entire building. ~~The floor of the atrium shall not be used for any activities that exceed the designed capability of the automatic sprinkler system. Where a smoke control system is present the use and arrangement of the atrium floor shall be consistent with the design of the smoke control system.~~

Exceptions:

1. That area of a building adjacent to or above the *atrium*

need not be sprinklered provided that portion of the building is separated from the *atrium* portion by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

2. Sprinkler protection at the ceiling of the *atrium* is not required provided the following criteria are met:

   2.1. The ceiling of the *atrium* is more than 55 feet (16764 mm) above the floor, and
   2.2. The floor of the *atrium* shall not be used for other than low fire hazard uses.

Individual Consideration Agenda

Public Comment 1:

Proponent : Robert Davidson, Davidson Code concepts, LLC, representing Self (rjd@davidsoncodeconcepts.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

[F] 404.3 Automatic sprinkler protection. An *approved automatic sprinkler system* shall be installed throughout the entire building. ~~The floor of the atrium shall not be used for any activities that exceed the designed capability of the automatic sprinkler system. Where a smoke control system is present the use and arrangement of the atrium floor shall be consistent with the design of the smoke control system.~~

Exceptions:

1. That area of a building adjacent to or above the *atrium* need not be sprinklered provided that portion of the building is separated from the *atrium* portion by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.
2. Sprinkler protection at the ceiling of the *atrium* is not required provided the following criteria are met:
   2.1. The ceiling of the atrium is more than 55 feet (16764 mm) above the <u>highest</u> floor <u>level area within the atrium</u>, and
   2.2. The floor of the atrium shall not be used for other than low fire hazard uses.

Commenter's Reason: The effectiveness of fire sprinklers over 55 feet in height was not in question in the original proposal. The proposal intended to simply re-arrange the language and clarify the intent. During the hearing the Committee raised

the issue of whether the 55 foot sprinkler exception should be provided in cases where there are floor spaces within the atrium above the lowest atriumfloor level where the measurement is taken from. This type of arrangement is common.

The testing that established the 55 feet took place at UL after the McCormick Place Fire in 1967. 55 feet was established because at the McCormick Place fire, sprinklers operated successfully at 50 feet. The UL tests confirmed the 50 feet height and added ten percent. In the 1981 edition of NFPA 101, one of the new special features was a new section dealing with atriums, requiring sprinklers throughout, but permitted the code official to waive the requirements for sprinklers at the top of the atrium when the ceiling was more than 55 feet above the floor. The burden of the decision to exclude sprinklers over 55 feet was put to the code official because testing at that time was limited to 50 feet. The intent was that the code official could waive sprinklers at the ceiling when provided with further testing or proof that sprinklers were not to be effective. This atrium criteria has changed little in the past 30+ years, but the option for the code official to waive sprinklers at the ceiling has morphed into more of the rule than the exception in the legacy codes and in the IBC. The UL testing mentioned above did not use or experiment with different levels of fuel sources. Only the operation of sprinklers was tested, meaning only the standard fuel load of wood, paper and cotton fabric was used to simulate fire. The fuel loads at the atrium floors are certainly much different today and the inclusion of plastics can be more intense than they were almost 50 years ago.

The IBC, as written, would permit the omission of sprinklers at a ceiling with a moderate to high fuel load. This proposal and modification aims to prohibit the omission of ceiling sprinklers when the fuel loads at the atrium floor are in excess of the low hazard according to the IFC by re-arranging the language to provide improved technical clarity.

Sprinklers should not be omitted from high ceilings without a great deal of thought and analysis. The testing that put the 55 foot rule in the code did not include modern day higher hazard fuel loads, such as plastics and synthetics at the atrium floor. The 55 feet rule in the IBC and other codes only applies to atriums. It is certainly proven that in the past 50 years, sprinklers have been installed and proven effective at much higher heights.

This public comment addresses the committee concern by adding language to restrict the application of the 55 foot sprinkler exception when there are floor spaces within the atrium above the lowest floor level of the atrium.

During the hearing a friendly amendment was suggested to eliminate the two new sentences proposed to be added to section 404.3 concerning the sprinkler and smoke control systems since these topics are covered by other portions of the IBC and IFC. This public comment incorporates that suggested modification.

G89-15

G91-15
404.5

Proposed Change as Submitted

Proponent : Raymond Grill, Arup, representing Arup (ray.grill@arup.com)

2015 International Building Code

Revise as follows:

404.5 Smoke control. A smoke control system shall be installed in accordance with Section 909.

~~Exception~~ Exceptions:

1. In other than Group I-2, and Group I-1, Condition 2, smoke control is not required for *atriums* that connect only two *stories*.
2. In other than Group I-2 and Group I-1, Condition 2, smoke control is not required for atriums where levels above the lowest level are separated from the atrium in accordance with Section 404.6.

Reason: In the event of a fire on the lowest level of the atrium, the atrium space will provide a heat and smoke sink that would enhance the safety of occupants at the base of the atrium. Heated products of combustion will rise and will allow more time for egress. The separation of upper levels in accordance with 404.6 precludes exposure to occupants on upper levels.
Smoke removal after the event can be performed in the same manner as in any other building without an atrium. There is no greater exposure presented.

In other sections of the code, multiple interconnected levels are allowed without smoke control. Section 712.1.3.1 allows an unlimited number of levels in Group B and M occupancies to be interconnected by escalators when draft stops and sprinklers are provided around the floor opening. Section 1019.3 allows exit access stairs to interconnect an unlimited number of stories in Group B and M occupancies to be interconnected without shaft enclosures if draft stops and sprinklers are provided around the openings. The code allows escalators and exit access stairs to interconnect up to 4 stories in other occupancies without shaft enclosures provided draft stops and sprinklers are provided around the floor openings.

The proposed exception would present less of a fire safety risk than is currently allowed by the code.

Cost Impact: Will not increase the cost of construction
The proposed exception could significantly reduce the cost of construction and reduce the ongoing maintenance cost of the building since a system requiring regular testing would no longer be required.

G91-15 : 404.5-GRILL4975

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal appears to allow the rationale analysis for the capacity of the smoke control system. The committee was unclear that this is a

valid alternative to the atrium smoke control requirement.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Raymond Grill, Arup, representing Arup - Self (ray.grill@arup.com) requests Approve as Submitted.

Commenter's Reason: If there are no open levels to the atrium above the lowest level, a smoke control system should not be required.

Public Comment 2:

Proponent : Gregory Nicholls, representing The Preview Group (gnicholls@preview-group.com) requests Approve as Submitted.

Commenter's Reason: The proposal to allow the atrium to pass through upper floors without smoke control expands the options for compliance without sacrificing life safety. Testimony at the hearings showed that having all floors except for the base level floor separated as required for the shaft equivalency already in the atrium section is actually more restrictive than what exists in current text. No matter how many floors an atrium passes through, it remains an accepted alternative to a fully enclosed shaft. Since this would only allow one level to be open beyond the enclosure of the atrium shaft, it is more conservative than code which allows two stories to be fully open without smoke control. As the original reason statement also indicated, the atrium shaft would create a smoke and heat sink to prevent migration to the lowest level.

G91-15

G93-15
404.6

Proposed Change as Submitted

Proponent : Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

404.6 Enclosure of atriums. *Atrium* spaces shall be separated from adjacent spaces by a 1-hour *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both.

Exceptions:

1. A *fire barrier* is not required where a glass wall forming a smoke partition is provided. The glass wall shall comply with all of the following:
    - 1.1. Automatic sprinklers are provided along both sides of the separation wall and doors, or on the room side only if there is not a walkway on the *atrium* side. The sprinklers shall be located between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and at intervals along the glass not greater than 6 feet (1829 mm). The sprinkler system shall be designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction;
    - 1.2. The glass wall shall be installed in a gasketed <u>or similarly sealed</u> frame in a manner that the framing system deflects without breaking (loading) the glass before the sprinkler system operates; and
    - 1.3. Where glass doors are provided in the glass wall, they shall be either *self-closing* or automatic-closing.
2. A *fire barrier* is not required where a glass-block wall assembly complying with Section 2110 and having a $^{3}/_{4}$-hour *fire protection rating* is provided.
3. A *fire barrier* is not required between the *atrium* and the adjoining spaces of any three floors of the *atrium* provided such spaces are accounted for in the design of the smoke control system.

Reason: The term "gasket" is generally defined as "*a shaped piece or ring of rubber or other material sealing the junction between two surfaces...*". In this instance, it refers to a pre-manufactured (shaped) piece that is compressed to form a sealed junction between the glass and the frame that is meant to restrict the passage of gases between them.

The word "gasketed" does not allow for structural or wet-set glazed systems to be used. However, these tested assemblies are approved for rated glass, and do not utilize gaskets.

For example, PLO/WA90-01 uses PVC tape, sealant, and angle stops. The frame is still being loaded but no gaskets are used. The current language is overly restrictive given that there are proven technologies available that produce the same outcomes. This allows the use of other materials that address unique designs or systems not currently anticipated in the code.

Additionally, traditional "gaskets" in frames have been prohibited in many Group I-3 (detention) occupancies. This is because gaskets can potentially be removed and used as weapons by the inmates.

Therefore, it is important to clarify that the use of other approved methods to affix and/or seal the glass to the frame are acceptable methods of compliance. This proposal is intended to include products based on new technology.

Cost Impact: Will not increase the cost of construction
This proposal does not increase construction costs as it only offers an option to the current requirement, without removing or changing the current requirements.

G93-15 : 404.6-DIGIOVANNI3820

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee was supportive of the concept of allowing other solutions to the windows 'gasketing' but felt the proposed language was too open ended. If the proposal was revised along the lines of 'and other approved materials', it would allow for the building official to review and accept other methodologies. The committee wanted to make sure that the common practice of 'butt jointing' glazing, frequently used in such locations, was clearly addressed in revised text.

Assembly Motion: As Submitted
Online Vote Results: Successful
Support: 54.55% (174) Oppose: 45.45% (145)
Assembly Action : Approved as Submitted

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action requests Approve as Submitted.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Approve as Submitted was successful by a vote of 54.55% (174) to 45.45% (145) by eligible members online during the period of May 14 - May 28, 2015.

G93-15

G97-15
406.3

Proposed Change as Submitted

Proponent : William King, City of Alexandria, representing Virginia Building Code Officials Association (william.king@alexandriava.gov)

2015 International Building Code

Revise as follows:

406.3 Private garages and carports. Private garages and carports shall comply with Sections 406.3.1 through 406.3.6.

> **Exception:** Private garages conforming to the requirements of public parking garage in accordance with Section 406.4.

Reason: Based upon the current definition of private garage, a parking garage for an apartment building would be a private garage and subject to limitations including a size limitation of 1,000 sf unless separated with fire barriers. In highly urbanized jurisdictions, parking for apartment complexes are provided either separate parking garages or underground parking. This parking is exclusively for the use of the tenants so would qualify as a private garage. These structures are currently constructed as either open or enclosed parking garages due to the number of cars and the scale of the structures. Limiting the size of these larger parking structures appears to be an unintended consequence of this new definition and without this exception large scale parking garages used just by the building's tenants would effectively be prohibited. This exception would restore the options that were previously available and widely utilized. Given the occupants familiarity with garages that they park in every day, these private garages would provide a higher level of occupant safety than an equivalent public garage if designed to the same standard.

Cost Impact: Will not increase the cost of construction
Given that the current code would require private parking garages to be subdivided into 1,000 sf sections with fire barriers and associated opening protectives. This exception would remove all of this additional construction therefor reducing the cost of construction.

G97-15 : 406.3-KING3250

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The proposal provides clarity that larger garages can be built according to the public garage standards even where the use is limited to the private use of the building tenants. Approval may sent up a circular reference with Section 406.4.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Kathleen Petrie, representing City of Seattle, Department of Planning and Development (kathleen.petrie@seattle.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

406.3 Private garages and carports. Private garages and carports shall comply with Sections 406.3.1 through 406.3.6~~.~~

> ~~**Exception:** Private garages conforming to the requirements of public parking garage in accordance~~ , or shall comply with Section 406.4.

Commenter's Reason: We support this code proposal which allows private garages to comply with the requirements for either private or public garages. This public comment merely clarifies the proposal because the the option to choose is more accurately an alternate path instead of an exception.

G97-15

G101-15
TABLE 406.5.4

Proposed Change as Submitted

Proponent : Stephen Skalko, representing Precast/Prestressed Concrete Institute (svskalko@cox.net)

2015 International Building Code

Revise as follows:

TABLE 406.5.4
OPEN PARKING GARAGES AREA AND HEIGHT

TYPE OF CONSTRUCTION	AREA PER TIER (square feet)	HEIGHT (in tiers)		
		Ramp access	Mechanical access	
			Automatic sprinkler system	
			No	Yes
IA	Unlimited	Unlimited	Unlimited	Unlimited
IB	Unlimited	12 tiers	12 tiers	18 tiers
IIA	117,000 ~~50,000~~	10 tiers	10 tiers	15 tiers
IIB	78,000~~50,000~~	8 tiers	8 tiers	12 tiers
IV	50,000	4 tiers	4 tiers	4 tiers

For SI: 1 square foot = 0.0929 m^2.

Reason: During the development of the International Building Code the drafting committees commonly used the least stringent fire safety provisions from one of the legacy codes (i.e BOCA National Building Code, Standard Building Code, Uniform Building Code) in establishing the requirements. However, for open parking garages the least stringent values in the Standard Building Code (SBC) were not used. The SBC permitted open parking structures of non-combustible construction with less fire resistance (i.e. SBC Type IV construction, IBC Type II construction) to be built up to 400,000 sqft in area per tier. This area value, which was placed in the SBC in the early 1980's, was based on the use of noncombustible materials for construction of the open parking structure, the open sided features for the parking structure which reduced the risk of adverse impact from vehicle fires and the documented low fire

risk vehicles pose to the stability of open parking structures[1],[2].
Additional studies of fire experience in open parking structures in the United States since those earlier ones still supports the conclusion that vehicle fires pose a low fire risk to the parking structure. The more recent analysis of parking garage structure fires (i.e NFPA[3], Parking Market Research Company [4]) by the Fire Safety

Committee of the Parking Consultants Council concluded that in about 98.7% of the fires no structural damage occurred due to the parking structure fires studied[5]. This suggests that the present values in Table 406.5.4 for Open Parking Garages of IBC Type II construction are more stringent than necessary based on the low risk of fire damage to the structural elements from vehicle fires and should be permitted to increase.

Parking garages are classified as Group S-2, Low-hazard occupancies in Section 311.3 of the IBC, whether open or enclosed. For enclosed parking garages Table 506.2 permits sprinklered multi-story garages to be 117,000 square feet in area for Type IIA construction and 78,000 square feet for Type IIB construction. Table 406.5.4 recognizes the benefit of having open sides in the parking garage to reduce the risk from fire in lieu of providing sprinkler protection. Based on the low fire risk from vehicle fires and the open sided features of these garages this proposal will permit open parking garages of Type II construction to be built to the same areas permitted for sprinklered enclosed parking garage.

Bibliography: [1] Harris, Dr. Leslie, Market Research Associates, Survey of Fire Experience in Automobile Parking Structures in the United States and Canada, January 31, 1972.
[2] Harris, Dr. Leslie, Market Research Associates, 1979 Update of the Survey of Fire Experience in Automobile Parking Structures in the United States and Canada, January 31, 1979.

[3] Ahrens, Marty, National Fire Protection Association, Structure and Vehicle Fires in General Vehicle Parking Garages, January 2006

[4] Dendra, Dale F., Parking Market Research Company, McLean, VA, Parking Garage Fires (A Statistical Analysis of Parking Garage Fires in the United States 1986-1988), April 1992

[5] Parking Consultants Council Fire Safety Committee, Parking Structure Fire Facts, December 2008

Cost Impact: Will not increase the cost of construction
Open parking garages of Type II construction that exceed 50,000 square feet must be built to requirements of at least Type IB construction. Permitting larger open parking garages of Type IIA and IIB construction will result in a reduction in cost through savings in material and construction methods required for buildings that meet Type IB construction.

G101-15 : T406.5.4-SKALKO5478

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There was support for some increase in area based on moving to higher levels of building construction, however the committee was not convinced that the areas proposed by the proponent are appropriate. The committee might be comfortable with a large increase where sprinklers systems are provided.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Stephen Skalko, Stephen V. Skalko, P.E. & Associates, LLC, representing Precast/Prestressed Concrete Institute requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

TABLE 406.5.4
OPEN PARKING GARAGES AREA AND HEIGHT

TYPE OF CONSTRUCTION	AREA PER TIER (square feet)	HEIGHT (in tiers)		
		Ramp access	Mechanical access	
			Automatic sprinkler system	
			No	Yes
IA	Unlimited	Unlimited	Unlimited	Unlimited
IB	Unlimited	12 tiers	12 tiers	18 tiers
IIA	~~117,000~~ 75,000	10 tiers	10 tiers	15 tiers
IIB	~~78,000~~ 50,000	8 tiers	8 tiers	12 tiers
IV	50,000	4 tiers	4 tiers	4 tiers

For SI: 1 square foot = 0.0929 m^2.

Commenter's Reason: The values in Table 406.5.4 for Open Parking Garages are based on the use of noncombustible or fire resistant materials for construction of the open parking structure and the open sided features for the parking structure. These features reduce the risk of adverse impact from vehicle fires and such fire incidents have been documented to pose a low risk to the stability of open parking structures[1],[2].

Additional studies of fire experience in open parking structures in the United States since those earlier ones still supports the conclusion that vehicle fires pose a low

fire risk to the open parking structure. The more recent analysis of parking garage structure fires by the Fire Safety Committee of the Parking Consultants Council [i.e NFPA[3], Parking Market Research Company [4]] concluded that in about 98.7% of the fires no structural damage occurred due to the parking structure fires studied[5]. This suggests that the present values in Table 406.5.4 for Open Parking Garages of IBC Type II construction are more stringent than necessary based on the low risk of fire damage to the structural elements from vehicle fires and should be permitted to increase.

At the first hearing it was pointed out that the aggregate allowable area proposed by G101-15 for Types IIA and IIB open parking garages was much larger than that permitted for a sprinklered S-2, enclosed parking garage based on Table 504.4 and 506.2 values in the IBC. Some of the General Code Development Committee agreed there was merit to allow bigger open parking garages when constructed using buildings of fire resistive construction, however the table values proposed in G101-15 were considered too large and the code change was recommended for disapproval.

Since the studies show a very low fire risk of damage to open parking structures from vehicle fires and that some increase is merited for fire rated construction, this public comment modifies the original submittal and permits an increase in the allowable floor area for open parking garages of Type IIA construction consistent with that permitted for sprinklered S-2 enclosed garages. The proposed allowable floor area per tier for Type IIA open parking garages is reduced from 117,000 sqft to 75,000 sqft. This value is based on the common modular bay spacing for open parking garages which results in economical construction. The allowable area per tier for open parking garages of Type IIB construction will remain at the present code allowed value of 50,000 sqft per tier instead of the proposed value of 78,000 sqft.

Finally, the total aggregate area proposed for Type IIA open parking garages, based on 10 tiers at 75,000 sqft per tier, is similar to the aggregate allowable floor area for a sprinklered S-2, enclosed parking garage based on Tables 504.4 and 506.2. Permitting larger open parking garages of Type IIA construction will result in a reduction in cost without any compromise in fire safety through savings in material and construction methods required for open parking structures that would otherwise have to meet Type IB construction.

[1] Harris, Dr. Leslie, Market Research Associates, *Survey of Fire Experience in Automobile Parking Structures in the United States and Canada*, January 31, 1972.

[2] Harris, Dr. Leslie, Market Research Associates, *1979 Update of the Survey of Fire Experience in Automobile Parking Structures in the United States and Canada,* January 31, 1979.

[3] Ahrens, Marty, National Fire Protection Association, *Structure and Vehicle Fires in General Vehicle Parking Garages,* January 2006

[4] Dendra, Dale F., Parking Market Research Company, McLean, VA, *Parking Garage Fires (A Statistical Analysis of Parking Garage Fires in the United States 1986-1988), April 1992*

[5] Parking Consultants Council Fire Safety Committee, *Parking Structure Fire Facts,* December 2008

G101-15

G102-15
406.6.2

Proposed Change as Submitted

Proponent : Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

406.6.2 Ventilation. A mechanical *ventilation* system and an exhaust system shall be provided in accordance with Sections 404 and 502.13 of the *International Mechanical Code*.

Reason: Section 404 of the IMC provides specific requirements for the ventilation of an enclosed parking garage. There are additional requirements for the exhaust system for enclosed parking garages in Section 502.13 of the IMC. Identifying the specific sections will assist in ensuring all mechanical requirements for parking garages are used.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction. The proposal attempts to clarify the code, but does not make any technical changes to code requirements.

G102-15 : 406.6.2-KULIK4799

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt the proposal added words that are redundant because the comprehensive term 'ventilation' includes the more specific term of exhaust. As the IMC has distinct provisions which may change, the committee was uncomfortable with references to specific sections of another code.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by

this Public Comment.

Modify as Follows:

2015 International Building Code

406.6.2 Ventilation. A mechanical *ventilation* system and an exhaust system shall be provided in accordance with ~~Sections 404and502.13~~ Chapters 4 and 5 of the *International Mechanical Code*.

Commenter's Reason: Ventilation and exhaust are two separate and distinct terms. Ventilation is for recirculation to bring in fresh air into spaces intended to be occupied, whereas exhaust is to remove air to the outdoor atmosphere. Thus, ventilation systems are covered in Chapter 4, and exhaust systems are covered in Chapter 5. To address the concern of potential renumbering of the sections within these chapters, a general direction to these two chapters will assist in ensuring all mechanical requirements for parking garages are used.

G102-15

G104-15
407.2.1

Proposed Change as Submitted

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

Revise as follows:

407.2.1 Waiting and similar areas. Waiting areas ~~and similar~~ , public-use areas, or group meeting spaces constructed as required for *corridors* shall be permitted to be open to a *corridor*, only where all of the following criteria are met:

1. The spaces are not occupied as care recipient's sleeping rooms, treatment rooms, incidental uses in accordance with Section 509, or hazardous uses.
2. The open space is protected by an automatic fire detection system installed in accordance with Section 907.
3. The *corridors* onto which the spaces open, in the same *smoke compartment*, are protected by an automatic fire detection system installed in accordance with Section 907, or the *smoke compartment* in which the spaces are located is equipped throughout with quick-response sprinklers in accordance with Section 903.3.2.
4. The space is arranged so as not to obstruct access to the required *exits*.

Reason: The terminology "similar spaces" is vague and prone to interpretation. This change will allow for clarification of the original intent of the language. By amending this terminology to "public use areas" or "group meeting spaces" it will allow spaces such as family gathering areas, child play areas in children's wards, conservatories/game room/social interaction areas in long term recovery that are constructed as required for corridors and meet all of the established requirements to be permitted to be open to a corridor. Allowing these areas to be open to the corridor will provide better over sight and security of these areas thus allowing for quicker responses by staff to issues that develop in these areas. With the ban of smoking within hospitals there is not a risk of smoking within these areas and having these areas open to the corridor will allow staff to quickly sense and respond to any smoking that does occur. Being public spaces the need for privacy is not an issue. This change mirrors what is currently permitted in a nursing home environment and provide for a more open and inviting atmosphere.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is a clarification; therefore, there is no change in cost.

G104-15 : 407.2.1-WILLIAMS4231

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The change improves the intent of this provisions by giving specific examples of other spaces allowed to be open to the corridors. The existing text 'and similar' has led to a wide range of interpretations and mis-interpretations.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Disapprove.

Commenter's Reason: The term "group meetings" is the issue. Will conference rooms now be open to the corridors? This expanded list goes beyond the original intent.

G104-15

G105-15
407.2.6

Proposed Change as Submitted

Proponent : Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

407.2.6 Nursing home cooking facilities. In Group I-2, Condition 1, occupancies, rooms or spaces that contain a cooking facility with domestic cooking appliances shall be permitted to be open to the corridor where all of the following criteria are met:

1. The number of care recipients housed in the smoke compartment ~~is~~ shall not be greater than 30.
2. The number of care recipients served by the cooking facility ~~is~~ shall not be greater than 30.
3. Only one cooking facility area ~~is~~ shall be permitted in a smoke compartment.
4. The types of domestic cooking appliances permitted ~~are~~ shall be limited to ovens, cooktops, ranges, warmers and microwaves.
5. The corridor ~~is~~ shall be a clearly identified space delineated by construction or floor pattern, material or color.
6. The space containing the domestic cooking facility shall be arranged so as not to obstruct access to the required exit.
7. ~~A domestic~~ Domestic cooking ~~hood~~ hoods installed and constructed in accordance with Section 505 of the *International Mechanical Code* ~~is~~ shall be provided over ~~the cooktop or range~~ cooktops and ranges.
8. ~~The domestic cooking hood provided over the cooktop or range~~ Cooktops and ranges shall be ~~equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Preengineered automatic extinguishing systems shall be tested~~ protected in accordance with ~~UL 300A and *listed* and *labeled* for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer's instructions~~ Section 904.13.
9. ~~A manual actuation device for the hood suppression system shall be installed in accordance with Sections 904.12.1 and 904.12.2.~~
10. ~~An interlock device shall be provided such that upon activation of the hood suppression system, the power or fuel supply to the cooktop or range will be turned off.~~
10. A shut-off for the fuel and electrical power supply to the cooking equipment shall be provided in a location that is accessible only to staff.
11. A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes.
12. A portable fire extinguisher shall be ~~installed~~ provided. Installation shall be in accordance with Section 906 ~~of~~ and the ~~*International Fire Code.*~~extiguisher shall be located within a 30-foot (9144 mm)

distance of travel from each domestic cooking appliance.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
During the 2015 code cycle requirements were added to allow domestic cooking appliances to be installed in areas of Group I-2, Condition 1 occupancies that are open to the corridor when certain conditions were met. That included protecting cooktops and ranges with UL 300A compliant extinguishing systems in the hood. This proposal accomplishes the following:

1. Introduces mandatory language into Section 407.2.6

2. Allows an option for cooktops and ranges with listed ignition resistant burners to be provided in lieu of a UL 300A extinguishing system. These types of systems are investigated to verify that pans and cooking materials do not exceed 350 degrees C (662 degrees F). Recent work by the Fire Protection Research Foundation confirms that burners meeting these specifications are highly unlikely to ignite cooking materials. See: http://www.nfpa.org/research/fire-protection-research-foundation/reports-and-proceedings/other-research-topics/analytical-modeling-of-pan-and-oil-heating-on-an-electric-coil-cooktop

There will be a Group B corresponding code change proposal to IFC Section 904.13. The ICC Fire Code Action Committee (FCAC) supports this proposal and will be submitting the Group B proposal that follows:

904.13 Domestic cooking systems in Group I-2 Condition 1. In Group I-2 Condition 1, occupancies where cooking facilities are installed in accordance with Section 407.2.6 of this code, cooktops and ranges shall be protected in accordance with one of the following. ~~the domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Preengineered automatic extinguishing systems shall be tested in accordance with UL 300A and listed and labeled for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer's instructions.~~

1. Cooktops and ranges shall include heating elements or burners that have been tested and listed to not allow cooking pan temperatures to exceed 662 degrees F (350 degrees C), or

2 . The domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system complying with both of the following:

a. The automatic fire-extinguishing system shall be of a type recognized for protection of domestic cooking equipment. Preengineered automatic extinguishing systems shall be tested in accordance with UL 300A and listed and labeled for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer's instructions, and

b. Manual actuation and system interconnection for the hood suppression system shall be installed in accordance with Sections 904.12.1 and 904.12.2, respectively.

~~904.13.1 Manual system operation and interconnection. Manual actuation and system interconnection for the hood suppression system shall be installed in accordance with Sections 904.12.1 and 904.12.2, respectively.~~

~~904.13.2 Portable fire extinguishers for domestic cooking equipment in Group I-2 Condition 1. A portable fire extinguisher complying with Section 906 shall be installed~~

~~within a 30-foot (9144 mm) distance of travel from domestic cooking appliances.~~

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction. It includes editorial revisions and adds an option to the existing requirements to use ignition prevention cooktops.

G105-15 : 407.2.6-KULIK4658

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: This was a new provision for the 2015 code. With experience, improvements to the text to allow more consistent interpretation and compliance are needed.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Wayne Morris, representing Association of Home Appliance Manufacturers requests Disapprove.

Commenter's Reason: The Association of Home Appliance Manufacturers (AHAM) is opposed to the Code Proposal G 105-15 and the change suggested to Section 904.13 and we would like to present the following information. While we agree that additional protections for cooking in Nursing Home facilities is important, we disagree with several provisions in this proposal.
The proposal G 105-15 represents a significant change to the use of cooking appliances in Nursing Home Cooking Facilities. Currently the International Building Code requires that the cooking area over a standard cooktop or range should be provided with an automatic fire extinguishing system to prevent unattended cooking fires. We object to both the section of the Proposal 402.7.6 and to the new proposal on Section 904.13 as included in proposal G105-15. **This proposal would require not only the specific changes to an automatic shut-off of the range/cooktop but also that a cooktop or range not be allowed to have burners or elements that would exceed 662 deg F or 350 deg C.**

It is quite possible that at the time the proposal was first developed, the maker of the proposal was unaware of major changes taking place in the appliance safety standards. The appliance industry, in cooperation with other stakeholders, has already proposed and gained the acceptance of new cooking safety requirements in the applicable US voluntary safety standard. The cooking-related proposals included in the 2015 IBC proposal are unnecessary, duplicative, design restrictive, and ill-advised. They should be withdrawn.

AHAM is a strong supporter of the consensus standards process. We participate in over 50 safety standards for our industry. We help to develop standards committees, help to populate them, and help to support full participation by all stakeholders. In the case of safety of cooking appliances, the consensus process has considered and is still working on product safety standards.

The UL 858 standard for household ranges in the US recently released a new test requirement for coil cooktops to reduce the risk of fires from unattended cooking. The test involves running the burner in worst-case scenarios with cooking oil in a

pan, and the range must prevent the oil from igniting. This requirement will be in place on apply to all ranges and cooktops with coil heating elements within the next few years. A similar cooking safety test procedure is currently under review for inclusion in the Canadian Electric Range Standard, CSA 22.2 No. 61. Similar testing requirements are being developed for other cooking technologies, such as radiant and gas cooktops and ranges.

There are a number of reasons why this proposal would cause severe harm not only to the cooking appliance industry, but also to consumers through a very design-specific requirement.

1. The proposal in G105-15 for a timer to shut off power after 120 minutes is very design restrictive. It also has no details nor does it explain whether this is to be part of the range or part of the power/fuel system to the range. Such a requirement could be quite risky in a gas cooktop. To shut the fuel source off is one thing, but to then re-engage the fuel without proper controls could increase the risk. We ask that the Committee to remove this requirement #11, "A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes."
2. This proposal for automatic shut-off does not have any details about testing, how the device is to be applied, if it is on the product, how the deactivation will be accomplished and more important how it will be re-activated. There are no requirements in the applicable US safety standards for such a provision. This leaves the accomplishment of this to anyone's guess. This proposal should be made to the UL 858 and ANSI Z21.1 safety standards.
3. This proposal for automatic shut-off, while possibly well-meaning does not allow consumers to perform many of the functions of a cooktop or oven. Many operations such as "canning" take longer than 120 minutes. Many oven operations, such as slow cooking meats take longer than 120 minutes. We understand that this is for a "nursing home" but there are many high-functioning adults in adult facilities and requiring such a restriction on the performance is not warranted.
4. This proposal in 904.13 is very design specific. The proposal seeks to restrict the temperature of the burner and not the pan or vessel that is used to cook. All research to date notes that the issue at question is the temperature in the pan/vessel in which food materials are placed. Thus, even though the issue is the temperature in the pan or vessel, this requirement would restrict the actual burner. There are no test methods, descriptions of how the test would be conducted and no understanding of how a product would be evaluated.
5. We believe this proposal in 904.13 is built around the promotion of one particular solution on the market. That solution has a number of specific issues:
    1. The solution is not safety certified for use in kitchen ranges in the United States or Canada. No safety certification agency has given the approval for this product to be used on or in ranges or cooktops.
    2. The solution is only available for coil-element ranges as a replacement device. It will not allow nor are there any solutions currently available in concept or on the market that would restrict the temperature of the burner on coil-element, radiant, glass ceramic, induction, or gas ranges/cooktops to less than 662 deg F or 350 deg C.
    3. The solution has been reported to have a number of concerns about its efficacy and usefulness to consumers. In some cases, this has prompted behavior with this device that have raised questions about whether it would be in the best interest of safety.

6. It is inappropriate for a consensus standards development committee to develop standards proposals that have only one technical solution and is written to promote one particular product on the market. We doubt the Committee fully understood this at the time. While this may seem to be a simple design requirement, the change proposed to 904.13 is a thinly veiled attempt to promote one product and to require it in the Code.

7. This proposal in 904.13 seems to be written without fully understanding the information on or the technologies in development to prevent unattended cooking

fires.

8. AHAM and its members are very aware of the tragic situations with unattended cooking fires. For many years, AHAM, standards developers, staff at the U.S. Consumer Product Safety Commission (CPSC), NFPA, and other stakeholders have been meeting to develop effective solutions to the issue of unattended cooking fires. Considerable research has been done, much of which has noted the importance of providing a solution that would reduce cooking fires but allow a full range of cooking to the consumer.

9. In October 2014, AHAM made a proposal to UL Standard 858 that would, for the first, time create a test in the standard for coil-element cooktops to simulate an unattended cooking situation and require that cooking oil not ignite. This will eventually be extended to glass-ceramic and eventually gas cooktops. However, even the concept feasibility of such a pan temperature control mechanism has only been demonstrated at this time for coil-element ranges. Proposal G 105-15 and the accompanying 904.13 would only allow purchasing people to choose to install coil-element ranges.

10. Nothing in this proposal G105-15 mentions the need for such a solution or device to be safety certified. We think this is a gross error in the standard and which could leave consumers, nursing home administrators, and housing authorities at great risk.

11. This proposal in 904.13 will result in a considerable reduction in the cooking temperature in the pan or vessel on the cooktop. By restricting the temperature to 350°C on the burner, the temperature in the pan (depending on pan materials) will be considerably less and will definitely affect the ability to properly cook food to a safe temperature. The proposed addition to the IBC of limiting pan temperature to 350°C is inadequate by itself, as the test and measurement procedures are a crucial part of the requirement. If consumers are faced with a significant reduction in cooking temperatures, they could be prompted to take steps which would increase risk.

12. The proposal in 904.13, as it stands, speaks only to the maximum temperature, but equally important is the rate of rise of the temperature. Heating elements on cooktops may be constructed of considerable mass, which will allow average temperatures to be maintained but with "overshoot" temperatures during initial heat-up to be considerably higher.

13. This proposal in G105-15 is very design restrictive for the International Building Code. We believe such a requirement should be in the product safety standard. It is one thing to require the accompaniment of an over-the-range fire protection or fire extinguishing system. This is certainly within the scope of the requirements of the ICC or IBC. However, dictating specific design or performance parameters for a piece of individual equipment without knowing all the other requirements is inappropriate for the ICC or IBC.

14. Repeated references to 'domestic' appliances appears as though it would encompass household appliances. While compliance with any of these new requirements would only be required of those wishing to sell into the Nursing Home market, we see a substantial concern that additional sources of regulation could be broadened to many other product market categories. To the extent that these proposed additions to the IBC, IMC and IFC could potentially encroach on regulations on household appliances, however, AHAM should stand strongly against and oppose such encroachment.

It is difficult for AHAM to give advice to the General Building Code Committee on fire prevention. However, it would seem that without the proposed changes the International Building Code contains adequate coverage for Nursing Home facilities with the requirement of fire suppression systems.

While AHAM generally does not discuss the issue of cost of proposals, this proposal makes the statement that there will be no cost impact. As there are no products currently on the market that meet this requirement and are safety certified, we

question how the maker of the proposal arrived at that conclusion.

Thank you.

Bibliography: The Association of Home Appliance Manufacturers (AHAM) represents manufacturers of major, portable and floor care home appliances, and suppliers to the industry. AHAM's membership includes over 150 companies throughout the world. In the U.S., AHAM members employ tens of thousands of people and produce more than 95% of the household appliances shipped for sale. The factory shipment value of these products is more than $30 billion annually. The home appliance industry, through its products and innovation, is essential to U.S. consumer lifestyle, health, safety and convenience. Through its technology, employees and productivity, the industry contributes significantly to U.S. jobs and economic security. Home appliances also are a success story in terms of energy efficiency, safety, and environmental protection. New appliances often represent the most effective choice a consumer can make to reduce home energy use and costs.

AHAM is also a standards development organization and has authored numerous appliance performance testing standards used by manufacturers, consumer organizations and governmental bodies to rate and compare appliances. In partnership with the CSA Group, and UL Environment, AHAM developed the first sustainability standards for home appliances. AHAM's consumer safety education program has educated millions of consumers on ways to properly and safely use appliances such as portable heaters, clothes dryers, and cooking products. AHAM participates in the development of over 60 product safety standards and has authored numerous improvements to these standards.

Wayne Morris is the Vice President, Technical Operations and Standards and leads the standards development activities for the association.

G105-15

G109-15
407.5

Proposed Change as Submitted

Proponent : Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

407.5 Smoke barriers. *Smoke barriers* shall be provided to subdivide every *story* used by persons receiving care, treatment or sleeping and to divide other *stories* with an *occupant load* of 50 or more persons, into no fewer than two *smoke compartments*. Such stories shall be divided into *smoke compartments* with an area of not more than 22,500 square feet (2092 m^2) in Group I-2~~, Condition 1, and not more than 40,000 square feet (3716 m^2) in Group I-2, Condition 2, and the~~ . The distance of travel from any point in a *smoke compartment* to a *smoke barrier* door shall be not greater than 200 feet (60 960 mm). The *smoke barrier* shall be in accordance with Section 709.

Exceptions

1. A smoke compartment in Group I-2, Condition 2, is permitted to have an area of not more than 35,000 square feet (3252 m^2) provided all patient rooms within that smoke compartment are configured for one single bed per room.
2. A smoke compartment in Group I-2, Condition 2, is permitted to have an area of not more than 40,000 square feet (3716 m^2) used primarily as a radiology suite. For the purposes of this exception, a radiology suite is a dedicated space that includes the area for MRI, general radiology, PET, CT, flouroscopy, interventional radiology or gamma camera procedures and their needed support and staff areas, without any patient sleeping rooms.

Reason: The discussions of the Ad Hoc Healthcare group in the 2015 development cycle indicated that the larger smoke compartments were needed due to healthcare construction and design moving exclusively to one patient per room. In support of that, they had their spreadsheets that detailed exactly how many square feet every different room within a smoke compartment required to create a properly functioning unit, and then added up all of those square feet. Except for a radiology suite, which their spreadsheet indicated would now require the increase to 40,000 sq. ft., 35,000 sq. ft. would be sufficient for the other documented unit types (inpatient beds, emergency department with pediatrics, intensive care unit) as is recommended in this proposal.
In addition, knowing that the IBC is used in other countries as a model code, and in other countries the norm may be 2 patients (or more) per room, this would clearly indicate that the new, larger smoke compartments are only to be considered if and when a hospital goes to the 1 patient-per-room layout.

International Code Council
Ad-Hoc Committee for Healthcare

Inpatient Bed Unit - Generic Program

Item	Space Name	2010 Guideline Planning Module (SF)	Qty.	Total SF	1996-97 Guideline Planning Module (SF)	Qty.	Total SF	Actual Occupants	Comments
1									
1	Patient Area								
2	Patient Room	300	29	8,700	200	15	3000	29	2010: 1 Bed per room. 1996-97: 2 Bed per room
3	Patient Seclusion Room	not applicable			200	1	200		
4	Isolation Patient Room	350	4	1,400	120	4	480	4	
5	Specialty Treatment Room	350	1	350	120	1	120	1	
6	Work Alcove	68	2	136	68	2	136		
7									
8	Staff Areas								
9	Nurses Station 1	276	1	276	276	1	276		
10	Nurses Station 2	297	1	297	not required on smaller floor			10	Staff Nurses Actual (max)
11	Nurses Station 3	237	2	474	237	2	474	1	Staff Nurse Manager
12	Nurses Station 4	350	1	350	not required on smaller floor			1	Staff Unit Secretary
13	Nurse Supervisor / Phys Charting	475	1	475	475	1	475	4	Staff Physicians/Fellows/Residents (Transient)
14	Staff Storage / Locker Room	229	1	229	229	1	229	4	Staff EVS/Physical Plant/Kitchen/Materials Management (Transient)
15	Documentation Area	93	5	465	93	5	465	3	Staff Nurse Aids
16	Multipurpose Room	386	1	386	386	1	386		
17	Staff Lounge / Toilet	326	1	326	264	1	264		
18	Interdiciplinary Room	374	1	374	not required				
19	Unit Support	465	1	465	465	1	465		
20									
21	Support Spaces								
22	Environmental Services	78	2	156	78	1	78		
23	Soiled Holding / Workroom	355	1	355	355	1	355		
24	Clean Supply	202	2	404	202	2	404		
25	Medication Dispensing	259	2	518	259	2	518		
26	Equipment & Supply Storage	666	1	666	666	1	666		Includes storage for linen, emergency equipment, stretchers and wheelchairs
27	Nourishment Station	205	1	205	205	1	205		
28	Equipment Alcoves	404	1	404	300	1	300		Throughout, for equipment staging off corridor
29	Visitor Lounge / Resource Center	416	1	416	not required			18	Represents family members on unit at any given time
30	Electrical	321	1	321	80	2	160		
31	Telecomm	319	2	638	not required				
32	Stair	184	3	552	184	3	552		
33	Utility Shafts	200	4	800	200	4	800		
34	Patient Toilet Rooms	not req'd at single patient room			64	3	192		
35									
36									
37	Subtotal: Net Square Feet			20,138			11,200		
38									
39	Circulation Factor (1.70)			14,030			7,803		Actual
40									
41	Total Design Gross Square Feet			34,168			19,003		
42									
43	Building Gross Factor 1.25 (N/A)			0			0		
44									
45	Total Building Gross Area			34,168			19,003		
46									
47	2010 Calculated Occupant Load (250 sf/occupant)							137	
48	1996-97 Calculated Occupant Load (250 sf/occupant)							76	
49	Actual Occupant Load (From Above)							75	

University of PA Health System
Substantiation for larger square footage in smoke compartments
InpatientBedUnit

International Code Council
Ad-Hoc Committee for Healthcare

planning data courtesy Francis Cauffman

Emergency Department with Pediatrics - Generic Program

Item	Space Name	2010 Guideline Planning Module (SF)	Qty.	Total SF	1996-97 Guideline Planning Module (SF)	Qty.	Total SF	Actual Occupants	Comments
1	**Reception/Waiting**								
2	Walk-in Vestibule	120	1	120	120	1	120		
3	Ambulance Vestibule	140	1	140	140	1	140		
4	Reception/Greeter	120	1	120	not required			1	Greeter
5	Security Office	120	1	120	not required			1	Security Officer
6	Triage Exam	140	3	420	120	3	360	3	Patients
7	Triage Sub-Waiting	20	12	240	20	12	240	6	Waiting Occupants
8	Registration Stations	60	2	120	60	2	120	2	Staff
9	Registration: Clerical Work Area	120	1	120	120	1	120	2	Clerks
10	Adult Waiting	20	30	600	20	30	600	15	Waiting Occupants
11	Pediatric Waiting	20	15	300	20	15	300	8	Waiting Occupants
12	Pediatric Play	120	1	120	120	1	120	0	Service area to above
13	Toilets - Public	50	2	100	50	2	100		
14	Vending	60	1	60	60	1	60		
15	Co-Pay and Fiscal Advisor	110	1	110	not required			1	Financial Advisor
16	Consult./Bereavement Room	110	1	110	110	1	110		
17	Wheelchair Storage	5	4	20	5	4	20		
18		*Subtotal*		2,820			2,410		
19									
20	**Adult Clinical Care**								
21	*Treatment Space*								
22	Standard Exam/Treatment	155	19	2,945	80	19	1,520	19	Patients
23	Exam/Treat - Isolation	155	2	310	120	2	240	0	Accounted for in Bays
24	Bariatric Exam	220	2	440	not required			0	Accounted for in Bays
25	ENT	155	1	155	120	1	120	0	Accounted for in Bays
26	OB/Gyn Exam	155	1	155	120	1	120	0	Accounted for in Bays
27	OB/Gyn TLT	50	1	50	50	1	50	0	Accounted for in Bays
28	Swing/Psych	180	2	360	120	2	240	0	Accounted for in Bays
29	Major Trauma/Resusc	275	3	825	250	3	750	1	Patient. Staff accounted elsewhere
30	Patient Toilet	50	4	200	50	4	200		
31	*Direct Clinical Support*								
32	Clinical Workstation	400	1	400	400	1	400	6	Nurse Staff
33	Clinical Touchdown	60	4	240	60	4	240	2	Attending, Fellow
34	MD Charting	50	6	300	50	6	300	2	Visiting Physician
35	Meds	100	2	200	100	2	200		

35	Meds	100	2	200	100	2	200		
36	Nourishment	80	2	160	80	2	160		
37	Clinical Support	160	1	160	160	1	160		
38	Clean Supply	180	1	180	180	1	180		
39	Soiled Utility	120	1	120	120	1	120		
40	Equipment Storage	160	1	160	160	1	160		
41	Clean Linen storage	20	4	80	20	4	80		
42	Crash Cart Alcoves	10	2	20	10	2	20		
43	Stat Lab	80	1	80	not required				
44	Staff Toilets on Floor	50	2	100	50	2	100		
45	HAC	50	1	50	50	1	50		
46		*Subtotal*		10,750			7,950		
47	**Dedicated Pediatric Hybrid**								
48	Family Waiting	20	6	120	20	6	120	6	Waiting Occupants
49	Family Support Lounge	150	1	150	150	1	150		
50	*Inpatient Short Stay*								
51	Patient Room	220	6	1,320	120	6	720	12	Patient and Parent
52	Patient Room/Semiprivate	240	2	480	160	2	320	5	Patient and Parent
53	Patient Toilet Room	55	8	440	55	8	440		
54	Play and Activities	120	1	120	120	1	120	0	Accounted for in Patient Space
55	*ED Exam/Treatment*								
56	Exam/Treatment Rooms	160	3	480	120	3	360	6	Patient and Parent
57	Bariatric Pediatric	220	1	220	not required			2	Patient and Parent
58	Exam/OB	160	1	160	120	1	120		
59	Patient Toilet	50	3	150	50	3	150		
60	Major Trauma/Resusc	275	1	275	250	1	250	1	Patient. Staff accounted elsewhere
61	*Clinical Support*								
62	Clinical workstation	240	1	240	240	1	240	2	Nurses
63	Clinical Touchdown	60	2	120	60	2	120	1	Pediatrician
64	MD Charting	50	2	100	50	2	100	2	Visiting Physician
65	Family Consult	110	1	110	110	1	110		
66	Meds	80	1	80	80	1	80		
67	Nourishment	80	1	80	80	1	80		
68	Clean Utility	160	1	160	160	1	160		
69	Soiled Utility	120	1	120	120	1	120		
70	Equipment Storage	80	2	160	80	2	160		
71	Peds Crash Cart	20	1	20	20	1	20		
72	*Administrative Support*								
73	MD office	120	1	120	120	1	120	1	Physician
74	Nurse Manager	120	1	120	120	1	120	1	Nurse Manager
75	Staff Lounge	140	1	140	140	1	140		
76	Conference	160	1	160	160	1	160		
77	Staff Toilets	50	2	100	50	2	100		
78	Decon Shower	100	1	100	100	1	100		
79	Housekeeping	50	1	50	50	1	50		
80		*Subtotal*		5,895			4,730		
81									
82	**Offices/Administrative Support**								
83	Nursing Offices	100	4	400	100	4	400	0	Nurses (included above)
84	MD Touchdown Office	180	1	180	180	1	180	1	Physician
85	Director's Office	120	1	120	120	1	120	1	Director
86	Squad Room	80	1	80	80	1	80	2	EMT
87	Backboard Shower	10	1	10	not required				
88	Decontam. Storage	60	1	60	not required				
89	Lounge Area - Staff	140	1	140	140	1	140	0	Accouted Above
90	Shared Staff Locker Room	8	40	320	8	40	320	0	Accouted Above
91	Conference/Continuing Education	200	1	200	200	1	200		
92	Toilet / Shower - Staff	65	1	65	65	1	65		
93	Toilet - Staff	50	3	150	50	3	150		
94	Housekeeping Closet	50	1	50	50	1	50		
95		*Subtotal*		1,775			1,705		
96									
97									
98	Subtotal: Net Square Feet			21,240			16,795		
99									
100	Circulation Factor (	1.55)		11,682			9,237		Actual
101									
102	Total Design Gross Square Feet			32,922			26,032		
103									
104									
105	Total Building Gross Area			32,922			26,032		

2010 Calculated Occupant Load (250 sf/occupant)	132
1996-97 Calculated Occupant Load (250 sf/occupant)	104
Actual Occupant Load (From Above)	112

University of PA Health System
Substantiation for larger square footage in smoke compartments
ED with Peds Hybrid

International Code Council
Ad-Hoc Committee for Healthcare
Radiology Suite - Generic Program

Item	Space Name	2010 Guideline Planning Module (SF)	Qty.	Total SF	1996-97 Guideline Planning Module (SF)	Qty.	Total SF	Actual Occupants	Comments
1	**Patient Area**								
2	Waiting	20	36	720	20	36	720	18	waiting
3	Registration	64	8	512	64	8	512	8	staff
4	Consult	110	3	330	110	3	330	0	included below
5	Public Toilets	62	3	186	62	3	186		
6	Patient Education	1	56	56	not required				
7									
8	*MRI Suite*								
9	MRI Scan Rooms (1.5T, 3T)	430	6	2,580	325	6	1,950	6	Patients
10	MRI Control	882	1	882	100	6	600	6	Staff
11	MRI Warm Zone Vestibule	280	3	840	280	3	840		
12	MRI Equipment	280	4	1,120	150	4	600		
13	MRI Prep	275	1	275	275	1	275		
14	Patient Toilets	62	2	124	50	2	100		
15	Mens Gowned Waiting / Changing	240	1	240	240	1	240	6	patients changing
16	Womens Gowned Waiting / Changing	285	1	285	285	1	285	6	patients changing
17	*General Radiology Suite*								
18	General Rad Room	260	5	1,300	180	5	900	5	patients
19	Bone Densitometry	140	3	420	140	3	420	3	patients
20	Control	475	1	475	475	1	475	3	staff
21	Mens Gowned Waiting / Changing	240	2	480	240	2	480	5	patients changing
22	Womens Gowned Waiting / Changing	240	2	480	240	2	480	5	patients changing
23	Patient Toilets	62	1	62	62	1	62		
24	*PET/CT Suite*								
25	PET/CT Scan Room	420	2	840	350	2	700	0	included in prep/injection areas
26	PET/CT Control	120	2	240	120	2	240	2	staff
27	PET/CT Equipment	48	2	96	48	2	96		
28	Hot Lab	255	1	255	255	1	255		
29	Hot Toilet	62	1	62	62	1	62		
30	Hot Injection	130	1	130	130	1	130	2	
31	Prep Room	313	1	313	313	1	313	2	prep bays
32	*CT Suite*								
33	CT Scan Room	420	3	1,260	250	3	750	3	patients
34	CT Control Room	520	1	520	360	1	360	3	staff
35	CT Prep	550	1	550	300	1	300	0	included above
36	Mens Gowned Waiting / Changing	215	1	215	215	1	215	3	patients changing
37	Womens Gowned Waiting / Changing	215	1	215	215	1	215	3	patients changing
38	Patient Toilets	62	2	124	62	2	124		
39	*Fluoroscopy Suite*								
40	Fluoroscopy Room	405	2	810	320	2	640	2	patients
41	Patient Toilets	62	2	124	62	2	124		
42	Fluoroscopy Control	325	1	325	180	1	180	2	staff
43	*Interventional Radiology Suite*								
44	IR lab	368	2	736	350	2	700	2	patients
45	Scrub	110	1	110	110	1	110		
46	IR Prep / Recovery	950	1	950	750	1	750	5	patients
47	IR Exam	220	1	220	120	1	120		
48	Patient Toilet	62	1	62	50	1	50		
49	IR Workroom	230	1	230	180	1	180	4	nurses / physician / staff working in spaces above
50	*Gamma Camera Suite*								
51	Gamma Camera Scan Room	315	2	630	300	2	600		
52	Control Room	230	1	230	180	1	180		
53									
54	**Staff Areas**								
55	Reading Room	1,950	1	1,950	800	1	800	8	workstations
56	Conference Room	675	1	675	400	1	400	0	for staff accounted in department
57	Staff Lounge	625	1	625	375	1	375	0	for staff accounted in department
58	Staff Locker	470	1	470	470	1	470	0	for staff accounted in department
59	Staff Toilet	62	1	62	62	1	62		
60	Manager Office	110	1	110	110	1	110	1	manager
61	Radiology IT Office	80	3	240	80	3	240	3	Staff
62	MD Touchdown	200	2	400	200	2	400	4	Physicians
63									
64	**Support Spaces**								
65	Clean Supply	642	1	642	400	1	400		
66	Soiled Utility	273	1	273	200	1	200		
67	Moveable Equipment Storage	500	1	500	300	1	300		
68	Linen Storage	400	1	400	200	1	200		
69	Film / Scanning Room	170	1	170	350	1	350		Active films only. Inactive stored off-site. 2010: digital storage only: no films stored on site
70									
71									
72	Subtotal: Net Square Feet			27,131			21,156		
73									
74	Circulation Factor (	1.49)		13,269			10,366		
75									
76	Total Design Gross Square Feet			40,400			31,522		
77									
78	Building Gross Factor 1.25 (N/A)			0			0		
79									
80	Total Building Gross Area			40,400			31,522		

2010 Calculated Occupant Load (250 sf/occupant)	162
1996-97 Calculated Occupant Load (250 sf/occupant)	126
Actual Occupant Load (From Above)	120

University of PA Health System
Substantiation for larger square footage in smoke compartments
Radiology

International Code Council
Ad-Hoc Committee for Healthcare
Critical Care Unit - Generic Program

Item	Space Name	2010 Guideline Planning Module (SF)	Qty.	Total SF	1996-97 Guideline Planning Module (SF)	Qty.	Total SF	Actual Occupants	Comments
1	**Patient Area**								
2	Patient Room	200	14	2,800	150	14	2,100	21	Includes toilet in room.
3	Isolation Patient Room	350	2	700	150	1	150	4	
4	Consult Room	100	2	200	not required			0	Families included in patient room count
5	Visitor Waiting Room	200	1	200	not required				
6									
7	**Staff Areas**								
8	Nurses Station 1	100	1	100	100	1	100	2	
9	Nurses Station 2	125	1	125	125	1	125	2	
10	Nurses Station 3	160	2	320	160	2	320	2	
11	Nurses Station 4	100	1	100	100	1	100	2	
12	Documentation Stations	60	9	540	60	9	540		At every two patient rooms
13	Charting Stations	23	2	46	23	2	46	2	Alcove at nurses station
14	Office	100	1	100	100	1	100		
15	Multipurpose Room	200	1	200	200	1	200		
16	Staff Storage / Locker Room	100	1	100	100	1	100		
17	Staff Toilet	64	3	192	64	3	192		
18									
19	**Support Spaces**								
20	Soiled Utility	130	1	130	130	1	130		Unit Support: Storage or Utility as required by Guidelines
21	Clean Utility	130	1	130	130	1	130		
22	Pneumatic Tube Alcove	25	1	25	25	1	25		
23	Equipment Storage	320	1	320	200	1	200		20 square feet for 16 beds (2010 requirement only)
24	Wheelchair / Stretcher Storage	100	1	100	100	1	100		
25	Environmental Services Room	80	1	80	80	1	80		
26	Lounge / Resource Center	416	1	416	416	1	416		
27	Electrical	100	1	100	100	1	100		
28	Telecomm	200	1	200	200	1	200		
29									
30									
31	Subtotal: Net Square Feet			7,224			5,454		
32									
33	Circulation Factor (1.45)			3,251			2,454		Actual
34									
35	Total Design Gross Square Feet			10,475			7,908		
36									
37	Building Gross Factor 1.25 (N/A)			0			0		
38									
39	Total Building Gross Area			10,475			7,908		

2010 Calculated Occupant Load (250 sf/occupant)	42	University of PA Health System Substantiation for larger square footage in smoke compartments IntensiveCareUnit
1996-97 Calculated Occupant Load (250 sf/occupant)	32	
Actual Occupant Load (From Above)	35	

Cost Impact: Will increase the cost of construction
This code change will increase the cost of construction as compared to the 2015 IBC, due to the need for some additional smoke barrier walls to create the smoke compartments smaller than the 40,000 sq. ft. smoke compartments. This code change will decrease the cost of construction as compared to the 2012 IBC, all previous editions of the IBC, all three of the legacy codes, and also as compared to the Life Safety Code (through 2015), due to the smoke compartments being larger than 22,500 sq. ft., and thus needing fewer smoke barrier walls than each of those codes could have required.

G109-15 : 407.5-LOVELL4195

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee recognized the good work put forth by the proponent, but found the text to be unclear. Modifications to address the issues were ruled out of order. Of concern is the single bed patient room and whether such can be readily enforced. The proponents are encouraged to submit a public comment for consideration in the fall.

Individual Consideration Agenda

Public Comment 1:

Proponent : Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com); John Williams, CBO, representing Adhoc Healthcare Committee (AHC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

407.5 Smoke barriers. *Smoke barriers* shall be provided to subdivide every *story* used by persons receiving care, treatment or sleeping and to divide other *stories* with an *occupant load* of 50 or more persons, into no fewer than two *smoke compartments*. Such stories shall be divided into *smoke compartments* with an area of not more than 22,500 square feet (2092 m^2) in Group I-2. The distance of travel from any point in a *smoke compartment* to a *smoke barrier* door shall be not greater than 200 feet (60 960 mm). The *smoke barrier* shall be in accordance with Section 709.

Exceptions

1. A smoke compartment in Group I-2, Condition 2, is permitted to have an area of not more than ~~35,000~~ 40,000 square feet (~~3252~~ 3716 m^2) provided all patient sleeping rooms within that smoke compartment are configured for ~~one~~ single ~~bed per room~~ patient occupancy and any suite within the smoke compartment complies with Section 407.4.4.
2. A smoke compartment in Group I-2, Condition 2, without patient sleeping rooms is permitted to have an area of not more than 40,000 square feet (3716 m^2) ~~used primarily as a radiology suite~~. ~~For the purposes of this exception, a radiology suite is a dedicated space that includes the area for MRI, general radiology, PET, CT, flouroscopy, interventional radiology or gamma camera procedures and their needed support and staff areas, without any patient sleeping rooms.~~ _

Commenter's Reason: Lovell: For several years there has been discussion over the appropriate size of a health care occupancy smoke compartment. The major contributors to this debate committed to discussing the issue further in hopes of uncovering better data and reaching common ground. A separate egress study was procured, unfortunately the study was limited and the results were inconclusive. However, the proponents of this change were able to reach an agreement that we believe resolves the major concerns of most of the parties involved:

1. Limit the increase of smoke compartment size to hospitals only, which is what the current language states.
2. Only allow the increase to 40,000 ft^2 to smoke compartments that have single occupancy sleeping rooms -or- smoke compartments without patient sleeping rooms.

3. Allow the use of suites (which might contain multiple sleeping rooms) in all smoke compartments. However, limit those smoke compartments that contained multiple patient sleeping rooms (whether they be inside of a suite or outside of a suite) to 22,500 ft^2. Sleeping suites with single occupancy sleeping rooms would be permitted to be in a 40,000 sf smoke compartment.
4. Clarify that arrangements for single vs. multiple-occupancy rooms is intended to be by design, rather than an administrative decision. Thus, we have used the term "configured for single patient occupancy".

We are hopeful that the Committee will look favorably at this change, as we believe it represents the consensus of many of the interested parties.

Williams: For several years there has been discussion over the appropriate size of a healthcare occupancy smoke compartment. The major contributors to this debate committed to discussing the issue further in hopes of uncovering better data and reaching common ground. A separate egress study was procured, unfortunately the study was limited and the results were inconclusive. However, the proponents of this change were able to reach an agreement that we believe resolves the major concerns of most of the parties involved:

1. Limit the increase of smoke compartment size to hospitals only, which is what the current language states.
2. Only allow the increase to 40,000 ft2 to smoke compartments that has single occupancy sleeping rooms –or- smoke compartment without patient sleeping rooms.
3. Allow the use of suites (which might contain multiple sleeping rooms) in all smoke compartments. However, limit those smoke compartments that contained multiple patient sleeping rooms (whether they be inside of a suite or outside of a suite) to 22,500 ft2. Sleeping suites with on single occupancy sleeping rooms would be permitted to be in a 40,000 sf smoke compartment.
4. Clarify that arrangements for single- vs. multiple-occupancy rooms is intended to be by design, rather than administrative decision. Thus we have used the term "configured for single patient occupancy".

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: Adhoc Healthcare.

G109-15

G110-15
407.5

Proposed Change as Submitted

Proponent : Amanda Hickman, InterCode Incorporated, representing Fire Safe North America (amanda@intercodeinc.com)

2015 International Building Code

Revise as follows:

407.5 Smoke barriers. *Smoke barriers* shall be provided to subdivide every *story* used by persons receiving care, treatment or sleeping and to divide other *stories* with an *occupant load* of 50 or more persons, into no fewer than two *smoke compartments*. Such stories shall be divided into *smoke compartments* with an area of not more than 22,500 square feet (2092 m^2) in Group I-2~~, Condition 1, and not more than 40,000 square feet (3716 m^2) in Group I-2, Condition 2, and the~~ . The distance of travel from any point in a *smoke compartment* to a *smoke barrier* door shall be not greater than 200 feet (60 960 mm). The *smoke barrier* shall be in accordance with Section 709.

Reason: In the event of a fire, hospitals have a population with special concerns and vulnerabilities. To maintain an effective fire and smoke management system in health care environments, multiple compartments subdivided with smoke barrier walls must be incorporated and maintained in the life safety design for hospitals. A full evacuation is often neither practical nor in the best interest of hospital patients. Therefore, the International Building Code (IBC) and NFPA 101 Life Safety Code both require that the safety of patients in hospitals be provided through the use of a defend-in-place strategy using multiple fire safety features, including construction, compartmentation, fire detection and suppression, and a well-trained staff to assist in emergency relocation/evacuation of patients.

Smoke barriers are used to separate smoke compartments. Walls and floors designed and constructed as smoke barriers separate adjacent smoke compartments in a building. Smoke barriers are required to be constructed with a minimal fire resistance rating of 1 hour. This will ensure that they are not quickly breached in the event of a fire, especially if sprinkler operation is delayed, shielded, or prevented altogether, such as due to a water supply impairment . As the name implies, smoke barriers are also intended to restrict the movement of smoke. Ensuring the ability of smoke barriers to survive exposure to a fire and to restrict smoke movement in a fire incident is critical to the defend-in-place concept used in health care. A key part of this strategy is to use smoke compartments formed by smoke barriers to create temporary, safe areas for patients. The International Building Code requires that areas used for patients must be divided into a minimum of two smoke compartments. Patients in smoke compartments not directly involved in a fire are protected at least temporarily, and can be moved horizontally on gurneys if necessary across smoke barriers into an adjacent smoke compartment. This will buy valuable time, depending on the circumstances, to avoid the need for total evacuation.

Code changes in the 2015 Edition of the International Building Code resulted in the approval of two new code changes that changed smoke compartments in hospitals. Smoke compartments in I-2 occupancies are now less protected.

- Section 717.5.5 (new exception #2 in the 2015 IBC) permits smoke barriers in smoke compartments to eliminate smoke dampers in smoke barriers in sprinklered I-2 buildings, if the HVAC system is fully ducted; and
- Section 407.5 (2015 IBC) permits the area of smoke compartments in I-2,

condition 2, to be nearly doubled in size, expanded in area from 22,500 sq. ft. to 40,000 sq. ft.

The Section 407.5 change represents two major changes to current requirements without substantial justification and without consideration of implementation of both changes to the protection of smoke compartments. Fire Safe North America (FSNA) was strongly opposed to both of the changes in the protection of smoke compartments and testified in opposition. (The Air Movement and Control Association Intl (AMCA) has submitted a code change this cycle that further clarifies when a smoke damper can be eliminated from the duct system.)

Regarding the increased size of the smoke compartment, there was no correlation to the measurement of travel distances in a 40,000 sq. ft. compartment size. While travel distances are measured along a path of travel, the compartment sizes are measured in straight line distances. This major adjustment in smoke compartment size would potentially expose a greater number of patients to a fire incident, and establish the need for staff to relocate this higher number of patients to an adjacent area of safety, imposing an unacceptable level of safety for those patients. Current text has no limitations on the number of patients or the number of associated staff who may be located in any one smoke compartment. The change was based on the assumption that the size of functional patient areas has increased with no corresponding increase in patient population, but the code does not require such a limitation.

The proposal that significantly increased the allowable area of a smoke compartment in hospitals from 22,500 sq. ft. to 40,000 sq. ft. did not adequately address numerous issues in their substantiation, and was not resolved satisfactorily. The following contains excerpts from testimony from those who were opposed to these changes, including the National Association of State Fire Marshals, Fire Safe North America, International Association of Fire Fighters, the International Firestop Council, the Air Movement and Control Association International, and others:

1. The substantiation provided for increasing smoke compartment size in hospitals from 22,500 sq. ft. to 40,000 sq. ft. was only based on a study showing that the size of functional patient areas is increasing in most hospitals (for example, to private patient rooms from semiprivate rooms) from the "Facilities Management Guidelines", and not on any technical substantiation addressing specific concerns of patient safety.
2. The new code section does not address the concerns related to increasing the travel time for egressing patients out of one smoke compartment into another one, and the fire and smoke safety impact on those patients and staff.
3. The new code section has no limitations on the maximum number of patients that may be located in any one 40,000 sq. ft. smoke compartment. Without limitations on patient or occupancy limits, a larger smoke compartment size than what was previously permitted, could expose a higher number of patients, visitors, and hospital staff to a fire incident.
4. The new code section could be interpreted to allow existing hospitals to increase smoke compartment sizes in order to reduce maintenance costs by decommissioning some of their smoke barriers without actually reducing the number of patients within their smoke compartments.

An important point of interest is that an identical proposal to increase the size of a smoke compartment to 40,000 sq. ft. was proposed to the 2015 Life Safety Code, published and distributed worldwide by the National Fire Protection Association. Although approved narrowly by the Technical Committee, it was disapproved by the NFPA membership during the NFPA Association Members Meeting in Las Vegas in June, 2014. As a result, the change to 40,000 sq. ft. that is in the 2015 IBC and is not the 2015 Life Safety Code. There remains a conflict between the two regulatory documents, which causes problems for hospitals that need to comply with CMS regulations, as they require conformance with NFPA 101, including the 22,500 sq. ft. limitation on smoke compartment size.

This proposal seeks to restore the size of the smoke compartments in hospitals to 22,500 sq. ft. which will make the Life Safety Code and the IBC consistent with one

another.

Cost Impact: Will increase the cost of construction
This code change will increase the cost of construction as compared to the 2015 IBC, due to cost of constructing additional smoke barrier walls to make smoke compartments smaller than the currently required 40,000 sq. ft. smoke compartments.

G110-15 : 407.5-HICKMAN4344

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Based on the number of proposals submitted on this topic, there is a clear need for a comprehensive solution to the issue. Returing to the previous area limits are not justifiable.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Glenn Dean, Virginia State Fire Marshal's Office, representing Virginia State Fire Marshal's Office requests Approve as Submitted.

Commenter's Reason: The committee statement for disapproval said in part, "returning to the previous area limits are not justifiable" when in actuality the increase to 40,000 sq ft was in itself insufficiently justified. There's also an inference or falsehood that retaining the maximum travel distance of 200 feet would somehow offset the increase to 40,000 sq ft. The furtherance of the falsehood will be found in a future desire, or need, to cram more patients into the increased space and there's no reason to think that it won't happen. This will thereby place a greater burden on staff to evacuate patients. The proponents say there is a need to allow for more equipment per patient, which may be true, but with increased patient counts it begets increased equipment needs which will beget the need for more space and that will be at the future expense of increased travel distances around and through all this equipment.
In summary:

- The proponents did not sufficiently or adequately address fire service concerns about safe patient egress from these larger (doubled) compartment sizes.
- Increasing smoke compartment sizes in hospitals to 40,000 sq. ft. was based on a study showing that the size of functional patient areas is increasing in most hospitals from the "Facilities Management Guidelines" and not on any specific technical justification that included specific assurances for patient safety.
- Safety concerns related to increasing the travel time for patient evacuation from one smoke compartment to another one was not adequately addressed. To the contrary, while not conclusive there have been two recent studies conducted that explore the egress

times from the different size compartments and both studies strongly indicate that it may take longer to egress patients from a larger compartment than a smaller one. (See Fire Protection Research Foundation report: "Egress Modelling in Health Care Occupancies" Author: Virginia Alonso, GIDAI Group, University of Cantabria, July 2014. See also "Impact of Smoke Compartment Size on Horizontal Evacuation Time in Health Care Facilities" Worcester Polytechnic Institute graduate students, Mary Long and Drew Martin completed July 2015.)

- As alluded to above, it can argued that bigger compartments will inevitably lead to more patient rooms, and thereby more patients. The two recent studies indicated that staff-to-patient ratio, which can vary greatly from one hospital to another, was a major factor in the speed of patient evacuation times. Current code has no limitations on the maximum number of patients that may be located in any one 40,000 sq ft. smoke compartment. Without mandatory staff-to-patient ratios and no enforceable limitations on patient occupancy, a larger smoke compartment size could expose a higher number of patients, visitors, and hospital staff to a fire incident than previously permitted.

G110-15

G111-15
407.5.2

Proposed Change as Submitted

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

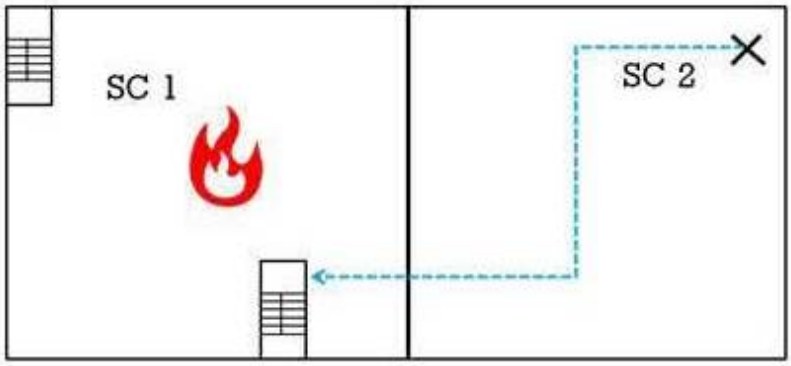
Revise as follows:

407.5.2 Independent egress. A *means of egress* shall be provided from each *smoke compartment* created by *smoke barriers* without having to return through the smoke compartment from which *means of egress* originated. Smoke compartments that do not contain an exit shall be provided with direct access to not less than two adjacent smoke compartments.

Reason: The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.
This code change is intended to more appropriately handle arrangement of the means of egress in a defend in place environment (i.e. hospitals and nursing homes.) The intent is to ensure that the arrangement of smoke compartments and exits prevents a situation where you have a "dead end smoke compartment." This requirement already exists within the federal Medicare requirements. This proposes rule (and the existing section) does not require a stair in every smoke compartment.
In Example 1, an occupant in smoke compartment 2 (SC2) would be forced to travel into smoke compartment 1 to access one of the two required exits for the floor. This is compliant with the current requirement that the occupant does not "return through the smoke compartment of egress origin." The smoke compartment where the mean of egress originates is smoke compartment 2. The dashed path does not leave smoke compartment 2, then RETURN back into smoke compartment 2. While this example meets current code, it creates an unacceptable hazard by creating a "dead end smoke compartment."

The proposed language would require that one of the stairs be located in smoke compartment 2, or, that the floor plate be rearranged to create access to two adjacent smoke compartments from compartment SC2.

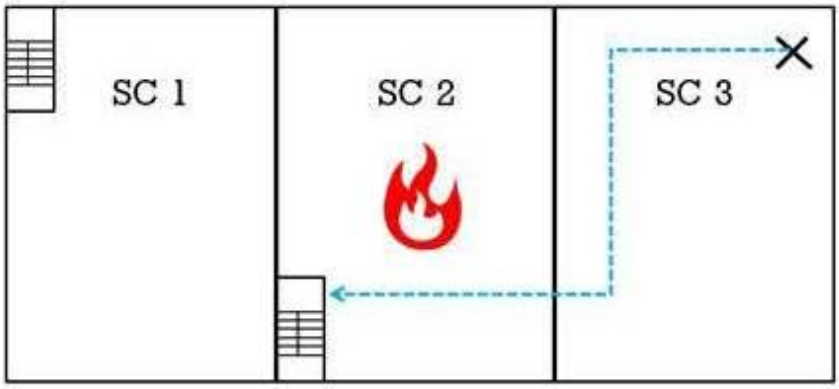
Example 1



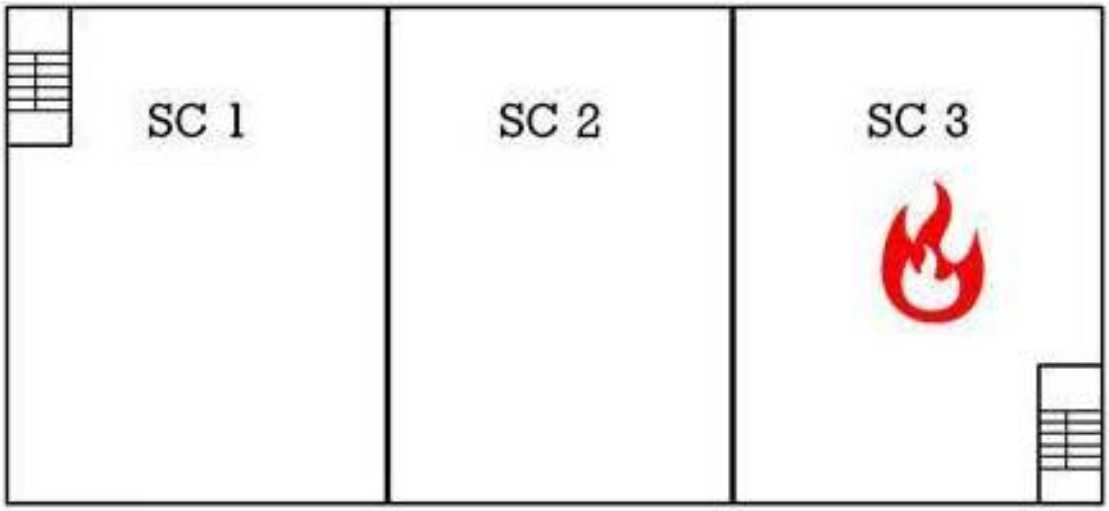
A similar condition exists in Example 2. An occupant in smoke compartment 3 would be required to travel through smoke compartment 2 to access an exit. If smoke compartment #2 has a fire, then the exiting is compromised. In this example, SC3 would be non-compliant with the proposed rule because it 1) does not have a stair, or, 2) it does not have access to two directly adjacent smoke compartments.

There is an easy fix to this problem: relocate the stair to smoke compartment #3 (see Example 3). That way, smoke compartments 1 and 3 have access directly to the stair, and smoke compartment #2 has access to at least two directly adjacent smoke compartments.

Example 2



Example 3



Cost Impact: Will not increase the cost of construction

This change will typically not increase the cost of construction, in that it does not affect how many exits are provided. It does limit the location on the floor plate, which could have cost implications. In worse case an additional smoke compartment would be required, which would definitely increase construction cost. Practically, since this is a federal requirement already there will be no perceived increase to facilities.

G111-15 : 407.5.2-WILLIAMS4238

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The proposal provides a much safer configuration requirement to support the defend in place concept. It eliminates the dead end smoke compartment that only has access to one other compartment. The committee understood that the phrase 'two adjacent smoke compartments' is intended that both individually adjacent to the smoke compartment where egress is initiated and not that the two other smoke compartments are not simply adjacent to each other.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Gregory Nicholls, representing The Preview Group (gnicholls@preview-group.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

407.5.2 Independent egress. A *means of egress* shall be provided from each *smoke compartment* created by *smoke barriers* without having to return through the smoke compartment from which *means of egress* originated. Smoke compartments that do not contain an exit shall be provided with direct ~~access~~ egress to not less than two ~~adjacent~~ smoke compartments.

Commenter's Reason: As a friendly clarification to the original, this modification revises the term used in the new second sentence from "access" to "egress", which will be consistent with the section title and with the first sentence of this code section. The term "adjacent" should be removed to eliminate confusion from an interpretation that would mean egress is being required from the original smoke compartment to two additional smoke compartments. The graphic submitted did very well to explain the concept, but since this will appear without it and just as simple code text, this should help clear up how many compartments are actually being required.

G111-15

G114-15
410.3.4

Proposed Change as Submitted

Proponent : Stephen DiGiovanni, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

410.3.4 Proscenium wall. Where the *stage* height is greater than 50 feet (15 240 mm), all portions of the *stage* shall be completely separated from the seating area by a proscenium wall with not less than a 2-hour *fire-resistance rating* extending continuously from the foundation to the roof.

Exception: Where the *stage* is located in a building of Type I construction, *proscenium walls*:

1. Where located above a minimum 2-hour *horizontal assembly* shall be permitted to extend from the top of this *horizontal assembly*.
2. Where located beneath a minimum 2-hour *horizontal assembly* are permitted to terminate at the underside of this *horizontal assembly*.
3. Are not permitted to terminate at a *horizontal assembly* where the provisions of Item 2 of Section 403.2.1.1 have been applied.

Reason: Stages with heights of greater than 50 feet are more commonly occurring in venues throughout the country. Additionally, these venues are also increasingly designed with either/both basements (beneath) and/or additional floors above the actual theater levels.

Basements help these venues to attract popular traveling "Broadway-style" shows that utilize large floor lifts from beneath the stage as part of their productions. In many cases, these basements are enlarged to include additional uses such as; office, storage rooms, and other back-of-house spaces.

Levels above the stage are more frequently occurring due to the proliferation of these venues being incorporated into the footprint of high-rise hotel towers, beneath "green" roof gardens (occupiable), and/or beneath additional meeting room/spaces (such as those used in urban-area convention centers).

Currently, Section 410.3.4 requires 2-hour proscenium walls to be continuously constructed from the foundation to the roof of a structure containing a stage with a height greater than 50 feet. Where venues are constructed with floors above and/or below such theaters, this provision requires proscenium walls to continue entirely through those floor levels regardless of the use and/or risks associated with them. This fails to recognize that venues having large stages are no longer limited to single-story buildings.

The proposed amendment would allow the proscenium to terminate at minimum 2-hour fire-resistance-rated horizontal assemblies above and/or below the space containing the stage.

Cost Impact: Will not increase the cost of construction
This proposal does not add to the cost of construction, and the added exception allows an option to existing code, but does not limit the use of the existing code

provisions.

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The committee agreed that the concept raised by the proposal is very much needed because many times theater stagers are part of a much larger and complex building. The prooposed text or that contained in the modficiation presented didn't provide a full 'encapsulazation of the stage because the lateral directions of the procenium wall are not addressed.

Assembly Motion: **As Modified**
Online Vote Results: **Successful**
Support: 50.63% (161) Oppose: 49.37% (157)
Assembly Action : **Approved as Modified**

Online Floor Modification:

410.3.4 Proscenium wall. Where the stage height is greater than 50 feet (15 240 mm), all portions of the stage shall be completely separated from the seating area by a proscenium wall with not less than a 2-hour fire-resistance rating extending continuously from the foundation to the roof.

Exception: Where the stage is located in a building of Type I construction, proscenium walls:

1. ~~Where~~Shall be permitted to terminate at the top of the foundation or floor/ceiling assembly where located above a minimum 2-hour horizontal assembly ~~shall be permitted to extend from the top of this horizontal assembly~~in accordance with Section 711.
2. ~~Where located beneath a minimum 2-hour horizontal assembly are~~Shall be permitted to terminate at the underside of ~~this~~ a floor/ceiling assembly where located below a minimum 2-hour*horizontal assembly*in accordance with Section 711.
3. ~~Are~~Shall not be permitted to terminate at a horizontal assembly where the provisions of Item 2 of Section 403.2.1.1 have been applied.

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action

requests Approve as Modified by Successful Assembly Action.

410.3.4 Proscenium wall. Where the stage height is greater than 50 feet (15 240 mm), all portions of the stage shall be completely separated from the seating area by a proscenium wall with not less than a 2-hour fire-resistance rating extending continuously from the foundation to the roof.

Exception: Where the stage is located in a building of Type I construction, proscenium walls:

1. ~~Where~~Shall be permitted to terminate at the top of the foundation or floor/ceiling assembly where located above a minimum 2-hour horizontal assembly ~~shall be permitted to extend from the top of this horizontal assembly~~in accordance with Section 711.
2. ~~Where located beneath a minimum 2-hour horizontal assembly are~~Shall be permitted to terminate at the underside of ~~this~~ a floor/ceiling assembly where located below a minimum 2-hour*horizontal assembly*in accordance with Section 711.
3. ~~Are~~Shall not be permitted to terminate at a horizontal assembly where the provisions of Item 2 of Section 403.2.1.1 have been applied.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Approve as Modified was successful by a vote of 50.63% (161) to 49.37% (157) by eligible members online during the period of May 14 - May 28, 2015.

G114-15

G115-15

412.3, 412.3.1 (New), 412.3.1.1, TABLE 412.3.1, 412.3.1.2 (New), 412.3.1.3 (New), 412.3.2 (New), 412.3.2, 412.3.3, 412.3.4, 412.3.4.1, 412.3.3 (New), [F] 412.3.5, 412.3.3.2 (New), 412.3.3.3 (New), 412.3.6, 412.3.4.1 (New), 412.3.7, 412.3.7.1, 412.3.8

Proposed Change as Submitted

Proponent : Christopher Moran, Jensen Hughes (cmoran@haifire.com); Eric Rosenbaum, representing Airport Traffic Control Tower Fire/Life Safety Technical Working Group

2015 International Building Code

412.3 Airport traffic control towers. The provisions of Sections 412.3.1 through 412.3.8 shall apply to airport traffic control towers occupied only for the following uses:

1. Airport traffic control cab.
2. Electrical and mechanical equipment rooms.
3. Airport terminal radar and electronics rooms.
4. Office spaces incidental to the tower operation.
5. Lounges for employees, including sanitary facilities.

Add new text as follows:

412.3.1 Construction. The construction of airport traffic control towers shall comply with the provisions of Sections 412.3.1.1 through 412.3.1.3.

Revise as follows:

~~**412.3.1**~~ **412.3.1.1 Type of construction.** Airport traffic control towers shall be constructed to comply with the height limitations of Table ~~412.3.1~~ 412.3.1.1.

TABLE ~~412.3.1~~ 412.3.1.1
HEIGHT LIMITATIONS FOR AIRPORT TRAFFIC CONTROL TOWERS

TYPE OF CONSTRUCTION	HEIGHT[a] (feet)
IA	Unlimited
IB	240
IIA	100
IIB	85

IIIA	65

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m^2.

a. Height to be measured from grade plane to cab floor.

Add new text as follows:

412.3.1.2 Structural integrity of interior exit stairways and elevator hoistway enclosures. Enclosures for interior exit stairways and elevator hoistway enclosures shall comply with Section 403.2.3.

412.3.1.3 Sprayed fire-resistant materials (SFRM). The bond strength of the SFRM installed in airport traffic control towers shall be in accordance with Section 403.2.4.

412.3.2 Means of egress and evacuation. The means of egress in airport traffic control towers shall comply with Sections 412.3.2.1 through 412.3.2.3.

Revise as follows:

~~**412.3.2**~~ **412.3.2.1 Stairways.** Stairways in airport traffic control towers shall be in accordance with Section 1011. ~~Stairways~~ Exit stairways shall be smokeproof enclosures complying with one of the alternatives provided in Section 909.20.

> **Exception:** Stairways in airport traffic control towers are not required to comply with Section 1011.12.

~~**412.3.3**~~ **412.3.2.2 Exit access.** *No change to text.*

~~**412.3.4**~~ **412.3.2.3 Number of exits.** *No change to text.*

~~**412.3.4.1**~~ **412.3.2.3.1 Interior finish.** *No change to text.*

Add new text as follows:

412.3.3 Emergency Systems. The detection, alarm and emergency systems of airport traffic control towers shall comply with Sections 412.3.3.1 through 412.3.3.3.

Revise as follows:

[F] ~~412.3.5~~ 412.3.3.1 Automatic ~~fire~~ smoke detection systems. Airport traffic control towers shall be provided with an automatic ~~fire~~ smoke detection system installed in accordance with Section ~~907.2~~ 907.2.22.

Add new text as follows:

412.3.3.2 Fire command center. The fire command center of an airport control tower shall comply with Section 911.

Exceptions:

1. Location. The fire command center is permitted to be located in the airport control tower or an adjacent contiguous building where building functions are interdependent.

2. Size. The room shall be not less than 150 square feet (14 m^2) in area with a minimum dimension of 10 feet (3048 mm).

3. Required features. The following features shall not be required in an airport traffic control tower fire command center.

3.1. Emergency voice/alarm control unit.
3.2. Public address system.
3.3. Status indicators and controls for the air distributions centers.
3.4. Generator supervision devices, manual start and transfer features.
3.5. Elevator emergency or standby power switches where emergency or standby power is provided.

412.3.3.3 Smoke removal Smoke removal in airport traffic control towers shall be provided in accordance with Section 403.4.7.

Revise as follows:

~~412.3.6~~ 412.3.4 Automatic sprinkler system. *No change to text.*

Add new text as follows:

412.3.4.1 Fire pump room. Fire pumps shall be located in rooms that are separated from all other areas of the building by 2-hour fire barriers constructed in accordance with Section 707 or 2-hour horizontal assemblies constructed in accordance with Section 711, or both.

Exception: Separation is not required for fire pumps physically separated in accordance with NFPA 20.

Revise as follows:

~~412.3.7~~ 412.3.5 ~~Elevator protection.~~ Protection of elevator wiring and cables. ~~Wires or~~
Wiring and cables ~~that provide normal or standby power,~~ serving elevators in airport traffic control ~~signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire detecting systems to elevators~~ towers shall be protected ~~by construction having a *fire-resistance rating* of not less than 1 hour, or shall be circuit integrity cable having a fireresistance rating of not less than 1 hour.~~ in accordance with Section 3007.8.1.

~~412.3.7.1~~ 412.3.5.1 Elevators for occupant evacuation. *No change to text.*

~~412.3.8~~ 412.3.6 Accessibility. Airport traffic control towers ~~need not~~ shall be *accessible* except as specified in ~~the provisions of Chapter 11.~~ Section 1104.4.

Reason: All of the proposed changes are the recommendation of the Air Traffic Control Tower Fire Life Safety Task Group, and reflect the current approach to fire protection and life safety in airport traffic control towers (ATCT). The fire safety criteria applicable to ATCTs are originally based on an agreement between the operator of and controllers utilizing the ATCTs. Many of the changes relate to providing extra protection for the controllers and fire service.
ATCTs create a unique hazard. ATCTs typically have a limited number of occupants. In addition, occupants must be awake and alert. The hazard associated with ATCTs is affected by the building's limited uses, height, and the potential delay in evacuation

because of the handoff of flights.

The occupied levels of an ATCT are typically located at the top of the structure that typically contains support equipment and services but has limited occupancy. In addition, the area of ATCTs has been increasing, even though the number of floors located on top of the shaft is still typically limited.

Based on the previous revision to the ATCT section, all high-rise requirements were no longer applicable. The sections added are specifically chosen from a review of code requirements that are applicable to high rise buildings. The limited sections applied to ATCTs reflect the limited area of the ATCT, especially the shaft; communications protocol; power applications; construction methods; fire and ATCT shut down history; and that the typical locations of ATCT is in secluded areas.

Section 412.3.1 – The proposed revisions add a construction sub-section for ATCTs. This subsection would include the original requirement regarding construction types and also include proposed criteria for the structural integrity of interior exit stairways and elevator hoistway enclosures and sprayed fire-resistant materials in limited seismic circumstances.

Section 412.3.1.2 – The proposed revision provides additional protection for the controllers when egressing the facility. Adding structural integrity criteria to the exit enclosures provides additional protection in an occupancy where delayed evacuations may be required.

Section 412.3.1.3 – The proposed revision provides additional structural protection by increasing the minimum bond strengths for sprayed fire-resistant materials. This raises the minimum bond strength from 150 psf to 430 psf for all ATCTs, with additional increases based on the height of the ATCT. The proposed requirement provides additional protection of the structural frame where delayed evacuations may be required.

Section 412.3.2 – The proposed revisions add a means of egress subsection. This proposed subsection provides consistency in Section 412.3 by organizing the various ATCT requirements into subsections.

Section 412.3.3 – The proposed revisions add an emergency systems subsection which includes the existing automatic fire detections systems requirements. New provisions of this subsection would include fire command centers and smoke removal.

Section 412.3.3.1 – The terminology of this section was changed to match that of section 907.2.22 and IFC section 914.8.1. This section is referenced from IFC section 914.8.1.

Section 412.3.3.2 is proposed to provide a control location for fire fighter operations due to the unique aspects of fighting fires in ATCTs. It is proposed that the fire command center be located in either the tower footprint or the adjacent base building (where provided). The base building supports the tower operations and is built contiguous to the ATCT. The majority of the requirements were taken from Section 911 with a few exceptions. The emergency voice/alarm communication system and public address system controls were removed as ATCTs are not provided with these systems. The fire alarm control unit would be located in the fire command center and provide status indicators for all associated systems. Status indicators and controls for the air distribution system was also removed due to the limited HVAC system sizes provided in ATCTs. Generator supervision devices, manual start and transfer features were also removed as the fire alarm system will monitor the generator conditions. The requirement for elevator power selector switches was removed as ATCTs are typically designed with a single elevator.

Section 412.3.3.3 is proposed to provide a method to aid fire fighter and salvage operations and get the ATCT back to operational status faster. The addition of smoke removal will reduce the down time of the tower and provide a method to remove smoke in a structure that has many compartments.

Section 412.3.4.1 is proposed to provide additional protection for the fire pump and require a minimum of 2 hour fire resistance rated separations from surrounding areas. As ATCTs are not considered a high-rise building, the 1-hour exception for fire pump room enclosures could be used. The intent of this section is to clarify that 2-

hour separations should be provided for ATCTs.

Section 412.3.5 has been revised to address changes in code language to the 2015 Edition and reference appropriate criteria.

Section 412.3.6 is proposed to be revised due to confusion based on the wording of the current requirement. In some cases, the current wording has been taken to mean that accessibility requirements do not apply to ATCTs. The revision clarifies that ATCTs are required to be accessible except as exempted by Section 1104.4.

Cost Impact: Will increase the cost of construction
This code change will increase the cost of construction from the current code requirements; however, reflects building practices of ATCTs.

G115-15 : 412.3-MORAN5043

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The proposal provides a comprehensive update to the airport control tower facilities. The proponent is a group purposely formed to address these facilities. This reflects current approach for safety in these facilities. The committee noted that the text of Section 412.3.3.2 doesn't clearly required the fire command center as the proponent stated was the intent. There was also concern that for smaller airfields where towers may be only a few stories, all of these requirements - which are clearly based on the high-rise buildling provisions may be a bit of an overkill.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Christopher Moran, representing Airport Traffic Control Tower Fire Life Safety Task Group (cmoran@jensenhughes.com); Eric Rosenbaum, representing Airport Traffic Control Tower Fire Life Safety Task Group (erosenbaum@jensenhughes.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

412.3.1.2 Structural integrity of interior exit stairways and elevator hoistway enclosures. Enclosures for interior exit stairways and elevator hoistway enclosures shall comply with Section 403.2.3 in airport traffic control towers where the control cab is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.

412.3.1.3 Sprayed fire-resistant materials (SFRM). The bond strength of the SFRM installed in airport traffic control towers shall be in accordance with Section 403.2.4 where the control cab is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.

412.3.3.2 Fire command center. A fire command center shall be provided in airport traffic control towers where the control cab is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access. The fire command center ~~of an airport control tower~~ shall comply with Section 911.

Exceptions:

1. Location. The fire command center is permitted to be located in the airport control tower or an adjacent contiguous building where building functions are interdependent.

2. Size. The room shall be not less than 150 square feet (14 m^2) in area with a minimum dimension of 10 feet (3048 mm).

3. Required features. The following features shall not be required in an airport traffic control tower fire command center.

3.1. Emergency voice/alarm control unit.
3.2. Public address system.
3.3. Status indicators and controls for the air distributions centers.
3.4. Generator supervision devices, manual start and transfer features.
3.5. Elevator emergency or standby power switches where emergency or standby power is provided.

Commenter's Reason: All of the proposed changes are the recommendation of the Air Traffic Control Tower Fire Life Safety Task Group, and reflect the current approach to fire protection and life safety in airport traffic control towers (ATCT). The fire safety criteria applicable to ATCTs are originally based on an agreement between the operator of and controllers utilizing the ATCTs. Many of the changes relate to providing extra protection for the controllers and fire service.

ATCTs create a unique hazard. ATCTs typically have a limited number of occupants. In addition, occupants must be awake and alert. The hazard associated with ATCTs is affected by the building's limited uses, height, and the potential delay in evacuation because of the handoff of flights.

The occupied levels of an ATCT are typically located at the top of the structure that typically contains support equipment and services but has limited occupancy. In addition, the area of ATCTs has been increasing, even though the number of floors located on top of the shaft is still typically limited.

The revision to section 412.3.1.2 is proposed to clarify when the structural integrity requirements are required in ATCTs. This is a change based on comments during the Committee Action Hearings.

The revision to section 412.3.1.3 is proposed to clarify when the increased sprayed fire-resistant materials requirements are required in ATCTs. This is a change based on comments during the Committee Action Hearings.

The revision to section 412.3.3.2 is proposed to clarify when fire command centers are required in ATCTs. This is a change based on comments during the Committee Action Hearings.

G115-15

G117-15

412.3.7, 909.20.6.1, [F] 913.2.2, (IFC 913.2.2), [F] 2702.3, 3007.8.1, 3008.8.1, Chapter 35

Proposed Change as Submitted

Proponent : Robert Davidson (rjd@davidsoncodeconcepts.com)

2015 International Building Code

Revise as follows:

412.3.7 Elevator protection. Wires or cables that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire detecting systems to elevators shall be protected by ~~construction having~~ one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 1 hour~~, or~~ .
2. Electrical circuit protective systems shall be ~~circuit integrity cable having~~ tested in accordance with ASTM E 1725 and shall have a ~~fireresistance~~*fire-resistance rating* of not less than 1 hour. Electrical circuit protective systems shall be installed in accordance with their listing requirements.
3. Construction having a *fire-resistance rating* of not less than 1 hour.

909.20.6.1 Ventilation systems. Smokeproof enclosure ventilation systems shall be independent of other building ventilation systems. The equipment, control wiring, power wiring and ductwork shall comply with one of the following:

1. Equipment, control wiring, power wiring and ductwork shall be located exterior to the building and directly connected to the smokeproof enclosure or connected to the smokeproof enclosure by ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.
2. Equipment, control wiring, power wiring and ductwork shall be located within the smokeproof enclosure with intake or exhaust directly from and to the outside or through ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.
3. Equipment, control wiring, power wiring and ductwork shall be located within the building if separated from the remainder of the building, including other mechanical equipment, by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

~~Exceptions~~ Exception:

1. Control wiring and power wiring ~~utilizing~~ located outside of a 2-hour ~~rated cable or cable system~~ fire barrier construction shall be protected using any one of the following methods:

1.1 Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 2 hours.

1.2 Where encased with not less than 2 inches (51 mm) of concrete.

1.3 ~~Control wiring and power wiring protected by a listed electrical~~ Electrical circuit protective ~~system~~ systems tested in accordance with ASTM E 1725 and shall have a *fire-resistance rating* of not less than 2 hours. Electrical circuit protective systems shall be installed in accordance with their listing requirements.

[F] 913.2.2 Circuits supplying fire pumps. Cables used for survivability of circuits supplying fire pumps shall be protected using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 1 hour.
2. Electrical circuit protective systems shall be tested in accordance with ASTM E 1725 and shall have a *fire-resistance rating* of not less than 1 hour. Electrical circuit protective systems shall be installed in accordance with their listing requirements.
3. Construction having a *fire-resistance rating* of not less than 1 hour.

[F] 2702.3 Critical circuits. Required critical circuits shall be protected using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a fire-resistance rating of not less than 1 hour.

2. Electrical circuit protective systems shall be tested in accordance with ASTM E 1725 and shall have a *fire-resistance rating* of not less than 1 hour. Electrical circuit protective systems shall be installed in accordance with their listing requirements.

3. Construction having a *fire-resistance rating* of not less than 1 hour.

3007.8.1 Protection of wiring or cables. Wires or cables that are located outside of the elevator hoistway and machine room and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire-detecting systems to fire service access elevators shall be protected ~~by construction having~~ using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 2 hours~~,~~.

2. Electrical circuit protective systems shall be ~~a circuit integrity cable having~~ tested in accordance with ASTM E 1725 and shall have a *fire-resistance rating* of not less than 2 hours ~~or~~. Electrical circuit protective systems shall be ~~protected by a listed electrical protective system~~ installed in accordance with their listing requirements.

3. Construction having a *fire-resistance rating* of not less than 2 hours.**E**

Exception: Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operations.

3008.8.1 Protection of wiring or cables. Wires or cables that are located outside of the elevator hoistway, machine room, control room and control space and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire-detecting systems to occupant ~~evactuation~~ evacuation elevators shall be protected ~~by construction having~~ using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* ~~of not less than 2 hours, shall be circuit integrity cable having a fire-resistance rating of not less than 2 hours or shall be protected by a listed electrical circuit protective system having a *fire-resistance rating*~~ of not less than 2 hours.
2. Electrical circuit protective systems shall be tested in accordance with ASTM E 1725 and shall have a *fire-resistance rating* of not less than 2 hours. Electrical circuit protective systems shall be installed in accordance with their listing requirements.
3. Construction having a *fire-resistance rating* of not less than 2 hours.

Exception: Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operation.

Add new standard(s) as follows: ADD NEW STANDARD TO CHAPTER 35:
ASTM E 1725 "STANDARD TEST METHODS FOR FIRE TESTS OF FIRE-RESISTIVE BARRIER SYSTEMS FOR ELECTRICAL SYSTEM COMPONENTS"

Reason: This series of code changes is intended to standardize the methods of protecting wiring or cables determined to be essential for the operation of systems and building services during emergency conditions. The basic intent of the code change proposals is already in the code, albeit somewhat random and inconsistent between sections. The change would permit protection of critical circuits using the most up to date technology based on current test methods while still recognizing the commonly used generic fire resistant materials constructed as an assembly already approved for use. Other than reformatting each section and adding a requirement for electrical circuit protective systems to be tested to the appropriate ASTM standard, there is no other significant change to what we believe is the intent of the code, and what the code already requires and/or permits.

Cost Impact: Will not increase the cost of construction
This code change will not increase the cost of construction since the intent of the code is not changed by this proposal.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E 1725 "STANDARD TEST METHODS FOR FIRE TESTS OF FIRE-RESISTIVE BARRIER SYSTEMS FOR ELECTRICAL SYSTEM COMPONENTS", , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or

before April 2, 2015.

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The proposal provides consistency for the protection of cables and electrical circuits. The five current locations addressing this issue have five unique sets of requirements. This proposal will provide consistency. It allows other methods that have been tested and proved effective. The concern raised is the term 'critical circuit'. The term is undefined and the terms used in the NEC are different.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jonathan Roberts, representing Underwriters Laboratories (jonathan.roberts@ul.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

412.3.7 Elevator protection. Wires or cables that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire detecting systems to elevators shall be protected by one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 1 hour.
2. Electrical circuit protective systems shall ~~be tested in accordance with ASTM E 1725 and shall~~ have a *fire-resistance rating* of not less than 1 hour. Electrical circuit protective systems shall be installed in accordance with their listing requirements.
3. Construction having a *fire-resistance rating* of not less than 1 hour.

909.20.6.1 Ventilation systems. Smokeproof enclosure ventilation systems shall be independent of other building ventilation systems. The equipment, control wiring, power wiring and ductwork shall comply with one of the following:

1. Equipment, control wiring, power wiring and ductwork shall be located exterior to the building and directly connected to the smokeproof enclosure or connected to the smokeproof enclosure by ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

2. Equipment, control wiring, power wiring and ductwork shall be located within the smokeproof enclosure with intake or exhaust directly from and to the outside or through ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.
3. Equipment, control wiring, power wiring and ductwork shall be located within the building if separated from the remainder of the building, including other mechanical equipment, by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

Exception:

1. Control wiring and power wiring located outside of a 2-hour fire barrier construction shall be protected using any one of the following methods:
    1.1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a fire-resistance rating of not less than 2 hours.
    1.2. Where encased with not less than 2 inches (51 mm) of concrete.
    1.3. Electrical circuit protective systems ~~tested in accordance with ASTM E 1725 and~~ shall have a fire-resistance rating of not less than 2 hours. Electrical circuit protective systems shall be installed in accordance with their listing requirements.

[F] 913.2.2 Circuits supplying fire pumps. Cables used for survivability of circuits supplying fire pumps shall be protected using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 1 hour.
2. Electrical circuit protective systems ~~shall be tested in accordance with ASTM E 1725 and~~ shall have a fire-resistance rating of not less than 1 hour. Electrical circuit protective systems shall be installed in accordance with their listing requirements.
3. Construction having a *fire-resistance rating* of not less than 1 hour.

[F] 2702.3 Critical circuits. Required critical circuits shall be protected using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 1 hour.
2. Electrical circuit protective systems ~~shall be tested in accordance with ASTM E 1725 and~~ shall have a fire-resistance rating of not less than 1 hour. Electrical circuit protective systems shall be installed in accordance with their listing requirements.

3. Construction having a *fire-resistance rating* of not less than 1 hour.

3007.8.1 Protection of wiring or cables. Wires or cables that are located outside of the elevator hoistway and machine room and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire-detecting systems to fire service access elevators shall be protected using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 2 hours.
2. Electrical circuit protective systems ~~shall be tested in accordance with ASTM E 1725 and~~ shall have a fire-resistance rating of not less than 2 hours. Electrical circuit protective systems shall be installed in accordance with their listing requirements.
3. Construction having a *fire-resistance rating* of not less than 2 hours.

Exception: Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operations.

3008.8.1 Protection of wiring or cables. Wires or cables that are located outside of the elevator hoistway, machine room, control room and control space and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire-detecting systems to occupant evacuation elevators shall be protected using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 2 hours.
2. Electrical circuit protective systems shall ~~be tested in accordance with ASTM E 1725 and shall~~ have a *fire-resistance rating* of not less than 2 hours. Electrical circuit protective systems shall be installed in accordance with their listing requirements.
3. Construction having a *fire-resistance rating* of not less than 2 hours.

Exception: Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operation.

Commenter's Reason: We agree with many of the updates in this proposal, which are reflected in this public comment. However we cannot support the addition of ASTM E 1725 in these sections.
Cables used for survivability of required critical circuits should be tested to evaluate their functionality during a period of fire exposure. UL 2196 evaluates a cable's ability to function during the fire exposure test, including having voltage and current applied to the cable during the fire exposure portion of the test. It also includes specific conditions of acceptance to verify the cable's functionality, both during and after the fire exposure and a hose stream test.

ASTM E1725, which is proposed as an alternate method for determining cable survivability does not evaluate the cable's ability to function during the fire test.

Instead it includes acceptance criteria that does not allow temperatures on the cable from exceeding an average temperature 250°F above ambient or an individual thermocouple temperature from exceeding 325°F above ambient, both which are far in excess of the temperature ratings of most cables used in these applications. It also does not evaluate performance after hose stream test exposure.

Public Comment 2:

Proponent : Marilyn Williams, National Electrical Manufacturers Association, representing National Electrical Manufacturers Association requests Disapprove.

Commenter's Reason: NEMA apposes this proposal. The proposed new text for testing Electrical Circuit Protective Systems to ASTM E1725 is in conflict with National Electrical Code requirements.

Electrical Circuit Protective Systems are listed under UL Category FHIT and include cables, cables in conduit, as well as mats and wraps used with conduit and cable trays. The National Electrical Code® requires that these systems be listed . . . for example in NEC Article 695 Fire Pumps, one of the allowable wiring methods is to use a listed electrical circuit protective system with a minimum of a 2-hour fire rating. An Information Note states that these systems are covered under UL Category FHIT and that the proper installation requirements shown in the listing must be followed to maintain the fire rating. This same requirement for listing is in Article 700, Emergency Systems, and Article 708 Critical Operations Power Systems.

Example of text from Article 695 Fire Pumps: (695.6)

(d) Inside of a Building. Where routed through a building, the conductors shall be installed using one of the following methods:

(1) Be encased in a minimum 50 mm (2 in.) of concrete (2) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s)

(3) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

G117-15

G118-15
420.2

Proposed Change as Submitted

Proponent : Carl Baldassarra, P.E., FSFPA, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

420.2 Separation walls. Walls separating *dwelling units* in the same building, walls separating *sleeping units* in the same building and walls separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *fire partitions* in accordance with Section 708.

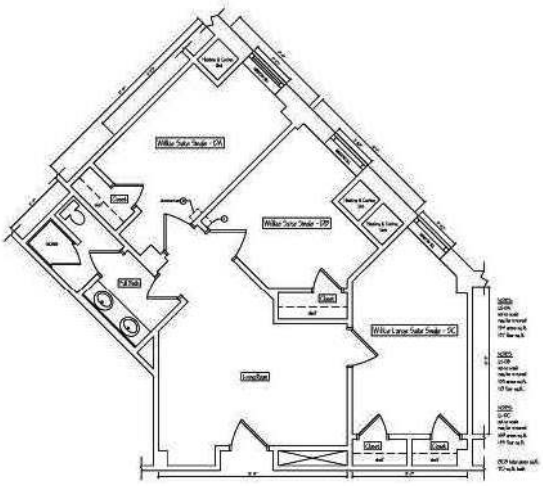
Exceptions:

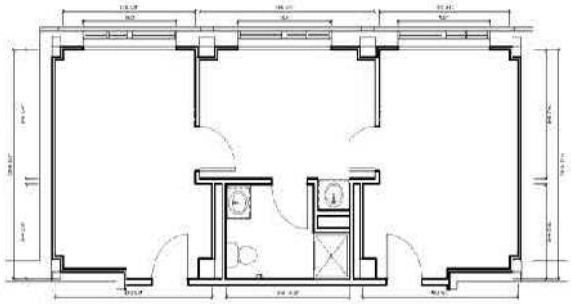
1. Where sleeping units include private bathrooms, walls between bedrooms and the associated private bathrooms are not required to be constructed as fire partitions.
2. Where sleeping units are constructed as suites, walls between bedrooms within the sleeping unit and the walls between the bedrooms and associated living spaces are not required to be constructed as fire partitions.

Reason: There are two concerns related to separation – 1) suites within hotels, dormitories, and assisted living where a sleeping rooms may share a bathroom, or sleeping rooms may have associated living space, and 2) group homes that operate as a single family unit. There are separate proposals to deal with each. It is the intent for these proposals to work together. This proposal is for the suites.

Some hotel rooms, assisted living and dormitories are designed as suites (see examples below). In a hotel or assisted living space, common designs are one or two bedrooms a living space and private bath. In a dorm, common designs are two rooms with a private bath between; or three or four bedrooms with a living space and private bathrooms. These units act as a group similar to an apartment; and without a kitchen, the associated fire hazards are reduced. When these bedrooms are combined into suites, they should be considered as one unit for purposes of separation. A separation would still be required between these units and the common corridor.

Figures for CTC Care proposal to to Section 420 (6B)





This is part of a group of proposals to address this style of design and group homes within single family residences. Changes are proposed for the definition for sleeping units, the Group classifications in Section 310.4 and 310.5, separation requirements in Section 420, and coordination with accessibility requirements in Section 1107. Proposals will be put forward as part of Group B for fire and smoke alarm systems. The proposals could work separately.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
It is the committee's understanding that current language is not clear for where separations are required. In some cases this would be a reduction in separation requirements, and therefore a decrease in cost.

G118-15 : 420.2 - BALDASSARRA4272

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: This is aimed at clarifying what constitutes a sleeping unit and whether a sleeping unit can have multiple rooms. And where multiple rooms exist, where are the separations required. The exceptions are necessary to clarify the intention of Section 420.2.

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Disapprove.

Commenter's Reason: Fire separation is still a necassary component for dwelling units. We don't know what goes on behind closed doors. In the example of dormitory suite sleeping rooms, as a assistant state fire marshal, I have inspected many rooms where smoking occurs and a red solo cup was used to cover the smoke detector within the room. In addition, candles, other open flames, hot plates, microwave with burning popcorn, fireworks,etc. continue to keep the occupancies at elevated risks. Fire separation between any sleeping units should remain in the code for safety of the occupants.

Public Comment 2:

Proponent : Steven McDaniel, representing New York State Building Officials Conference requests Disapprove.

Commenter's Reason: Although I agree with the intent of what the proponent is doing with this code change, there are unintended consequences.
The term "suites" is not defined except with regards to Care facilities. The term "suites" used in this proposal is not limited to Care facilites.

Exception number 1 is already permitted by the code, so there is no need for the exception.

Exception number 2 as worded would allow for Dormitory facilities to be constructed with no separations between any of the "Dorm Rooms" just because they are constructed as suites.

This code change does more damage than it does any good. It needs to be Disapproved and more work is needed for the next code cycle.

Public Comment 3:

Proponent : Maureen Traxler, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov) requests Disapprove.

Commenter's Reason: This code change is unnecessary. Section 420.2 doesn't require fire partitions within a dwelling or sleeping unit. It only requires them between dwelling units, between sleeping units, and to separate dwelling and sleeping units from other occupancies. The proponent is concerned about suites and group homes, but the proposed exceptions don't address those concerns. The exceptions both apply to "sleeping units" which are defined terms, and which are not required to have internal separations by 420.2. It might be helpful to explain in the Code Commentary how this section applies to various configurations of housing, but this code proposal merely adds confusion.
The Code Development Committee said "This is aimed at clarifying what constitutes

a sleeping unit and whether a sleeping unit can have multiple rooms." That's not the purpose of Section 420.2; it's the purpose of the definition. Much unclarity about suites will be addressed by approval of proposal G9-15. It clarifies that a sleeping unit may accommodate more than one person and may have more than one room. If G9-15 is approved, the residences shown in both the sketches submitted with this proposal would clearly be considered sleeping rooms.

G118-15

G119-15
420.2, 420.3

Proposed Change as Submitted

Proponent : Carl Baldassarra, P.E., FSFPA, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

SECTION 420
GROUPS I-1, R-1, R-2, R-3 AND R-4

420.1 General. Occupancies in Groups I-1, R-1, R-2, R-3 and R-4 shall comply with the provisions of Sections 420.1 through 420.6 and other applicable provisions of this code.

420.2 Separation walls. Walls separating *dwelling units* in the same building, walls separating *sleeping units* in the same building and walls separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *fire partitions* in accordance with Section 708.

> **Exception:** In Group R-3 and Group R-4 facilities, walls within the dwelling unit or sleeping unit are not required to be constructed as fire partitions.

420.3 Horizontal separation. Floor assemblies separating *dwelling units* in the same buildings, floor assemblies separating *sleeping units* in the same building and floor assemblies separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *horizontal assemblies* in accordance with Section 711.

> **Exception:** In Group R-3 and R-4 facilities, floor assemblies within the dwelling or sleeping units are not required to be constructed as horizontal assemblies.

Reason: There are two concerns related to separation – 1) suites within hotels, dormitories, and assisted living where a sleeping rooms may share a bathroom, or sleeping rooms may have associated living space, and 2) group homes that operate as a single family unit. There are separate proposals to deal with each. It is the intent for these proposals to work together. This proposal is for the Group R-3 and R-4.

Group R-4 group homes operate as a single family home. If these facilities are considered dwelling units or sleeping units is not consistently interpreted. Separation requirements would require bedrooms to be separated from each other and the corridor. Doors would have to be rated and have closers. This is not appropriate for this type of facility.

There have been a series of lawsuits against jurisdictions across the United States regarding enforcement of requirements for group homes that exceed the requirements for single family homes. This is being interpreted as a violation of the Fair Housing Act. The CTC committee reviewed the requirements for group homes in the codes to see where there were differences and if these differences were justified due to the level of care provided for the residents. In some limited

situations, where there was a question for Group R-4 group homes, the same issue existing for Group R-3 congregate residences. For consistency in the code, these need to be considered together rather than separately. Therefore, this proposal is for both Group R-4 and Group R-3 congregate residences (both with 16 or fewer residents per Sections 310.5 and 310.6.)

This is part of a group of proposals to address this style of design and group homes within single family residences. Changes are proposed for the definition for sleeping units, the Group classifications in Section 310.4 and 310.5, separation requirements in Section 420, and coordination with accessibility requirements in Section 1107. Proposals will be put forward as part of Group B for fire and smoke alarm systems. The proposals could work separately.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
It is the committee's understanding that current language is not clear for where separations are required. In some cases this would be a reduction in separation requirements, and therefore a decrease in cost.

G119-15 : 420.2 - BALDASSARRA4271

Public Hearing Results

Committee Action: Approved as Modified

Modification:

420.2 Separation walls. Walls separating *dwelling units* in the same building, walls separating *sleeping units* in the same building and walls separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *fire partitions* in accordance with Section 708.

> **Exception:** In Group R-3 and Group R-4 facilities, walls within the dwelling unit or ~~between~~ sleeping units are not

required to be constructed as fire partitions.

420.3 Horizontal separation. Floor assemblies separating *dwelling units* in the same buildings, floor assemblies separating *sleeping units* in the same building and floor assemblies separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *horizontal assemblies* in accordance with Section 711.

Exception: In Group R-3 and R-4 facilities, floor assemblies within the dwelling or ~~between~~ sleeping units are not required to be constructed as horizontal assemblies.

Committee Reason: The proposal clarifies that within a dwelling unit or within a sleeping unit, separations are unnecessary. These are the size of a dwelling unit and if the separations were imposed, it would impose rated doors within a dwelling unit. The hazards within such units is low. The modification was approved to reinforce that the separations are around the units and not within a unit.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Disapprove.

Commenter's Reason: The proposed change creates confusion because section 708 already does not apply to R-4 occupancies. Safety in R-4 occupancies where 24 hour supervision is required is superior to that of R-3. Therefore separate criteria for the two occupancies should be maintained.

Public Comment 2:

Proponent : Maureen Traxler, Seattle Dept of Planning & Development, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov) requests Disapprove.

Commenter's Reason: This code change, like G118-15, is unnecessary. Sections 420.2 and 420.3 don't require separations within a dwelling or sleeping unit. They only require them between dwelling units, between sleeping units, and to separate dwelling and sleeping units from other occupancies. By stating that separation isn't required in Group R-3 and R-4, the exceptions raise questions about whether separations are required in other occupancies.
The proponent is concerned about suites and group homes, but the proposed exception doesn't address those concerns. It might be helpful to explain in the Code Commentary how this section applies to various configurations of housing, but this code proposal merely adds confusion.

G121-15

420.7 (New), 420.7.1 (New), 420.7.2 (New)

Proposed Change as Submitted

Proponent : Adolf Zubia, representing IAFC Fire & Life Safety Section

2015 International Building Code

Add new text as follows:

420.7 Dormitory cooking facilties. Domestic cooking appliances for use by residents of Group R-2 college dormitories shall be in accordance with Sections 420.7.1 and 420.7.2.

420.7.1 Cooking appliances. Where located in Group R-2 college dormitories, domestic cooking appliances for use by residents shall be in compliance with all of the following:

1. The types of domestic cooking appliances shall be limited to ovens, cooktops, ranges, warmers, coffee makers and microwaves.
2. Domestic cooking appliances shall be limited to approved locations.
3. Cooktops and ranges shall be protected in accordance with Section 904.13.
4. Cooktops and ranges shall be provided with a domestic cooking hood installed and constructed in accordance with Section 505 of the *international Mechanical Code*.

420.7.2 Cooking appliances in sleeping rooms. Cooktops, ranges and ovens shall not be installed or used in sleeping rooms.

Reason: This proposal is submitted by Fire and Life Safety Section of the International Association of Fire Chiefs.
This proposal accomplishes the following:
1. There currently are no requirements in the IBC that regulate domestic cooking appliances for use by residents in Group R-2 college dormitories. This proposal includes basic requirements for the code official to follow in approving such installations.
2. Proposed Sections 420.7 and 420.7.1 include requirements that permit domestic cooking appliances in both common areas and sleeping rooms in college dormitories. It does not cover resident dwelling units in college campuses that are not classified as dormitories.
3. Section 420.7.1 covers domestic cooking appliances in common areas in college dormitories. The cooking appliances allowed are the same as those allowed in Section 407.2.6, Item 4 for Group I-2, Condition 1 occupancies.
4. Section 420.7.2 prohibits ovens, cooktops and ranges from being used in sleeping rooms. This reflects that fact that cooktops and ranges are the leading causes of fires in residential settings. For details see: http://www.iafc.org/files/1FIREPREV/flss_ResidentialRangeTopSafetyReport.pdf. This section does allow the use of other cooking appliances, such as microwaves and coffee makers, in sleeping rooms. However individual colleges may have more restrictive rules that prohibit some of these appliances from being used in their dormitories.

IFC/IBC Section 914.13 and 904.13.1 will be revised in the Group B code change cycle. The intent is to provide the same protection for domestic cooking appliances in R-2 college dormitories as currently provided in Group I-2, Condition 1 facilities. In essence a UL 300A fire-extinguishing system is required when a cooktop or range is provided. An automatic fire-extinguishing system is not required when only ovens, ranges, warmers, coffee makers or microwaves are provided. the revisions in Group B will be:

[F] 904.13 Domestic cooking systems ~~in Group I-2 Condition 1~~. Cooktops and ranges installed in the following occupancies shall be protected in accordance with Sections 904.13.1 through 904.13.2:
1. In Group I-2 Condition 1, occupancies where domestic cooking facilities are installed in accordance with Section 407.2.6 of the International Building Code,
2. In Group R-2 college dormitories where domestic cooking facilities are installed in accordance with Section 420.7. ~~the domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Preengineered automatic extinguishing systems shall be tested in accordance with UL 300A and listed and labeled for the intended application. The system shall be facilities are installed in accordance with this code, its listing and the manufacturer's instructions.~~

[F] 904.13.1 ~~Manual operation and interconnection~~ Automatic fire-extinguishing system. ~~Manual actuation and system interconnection shall be in accordance with Section 904.12.1 and 904.12.2, respectively.~~ The domestic cooking hood provided over the cooktop or range shall be equipped with an approved automatic fire-extinguishing system complying with the following:
1. The automatic fire-extinguishing system shall be of a type recognized for protection of domestic cooking equipment. Preengineered automatic fire-extinguishing systems shall be listed and labeled in accordance with UL 300A and installed in accordance with the manufacturer's instructions.
2. Manual actuation of the fire-extinguishing system shall be provided in accordance with Section 904.12.1.
3. Interconnection of the fuel and electric power supply shall be in accordance with Section 904.12.2.

Cost Impact: Will increase the cost of construction
This code change has the potential to increase the cost of construction due to the additional protection.

G121-15 : 420.7 (New)-ZUBIA4622

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The issue of cooking facilities in dormitories needs to be addressed. It occurs and the code doesn't clearly address. The provision is modeled after the provisions allowed for the I-2 occupancy. A related changed is planned for the IFC during the cycle next year. The committee raised the concern that if these occupancies are used during the summer as an R-1 whether accessibilty provisions may come into play.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : C Ray Allshouse, City of Shoreline, WA, representing

Washington Association of Building Officials Technical Code Development Committee (rallshouse@shorelinewa.gov) requests Disapprove.

Commenter's Reason: The proposed added code language is essentially unenforceable given the prescribed building permit process requirements provided in Chapter 1. Unless built-in, the named equipment would not be in place at a typical building final inspection. Simply put, an occurrence that can be fully resolved merely by hand unplugging and removal of a portable appliance has no place in the building code. Furthermore, built-in appliances are subject to and covered by mechanical and electrical code provisions. This proposal would be better suited for inclusion in the IFC and/or the IMC.

Public Comment 2:

Proponent : Wayne Morris, Association of Home Appliance Manufacturers, representing Association of Home Appliance Manufacturers requests Disapprove.

Commenter's Reason: Proposal G 121-15 (page 477 of the monograph) pertains to college dormitories where ranges and cooktops may be found in the living facilities. The Association of Home Appliance Manufacturers (AHAM) would like to comment on Code Proposal G 121-15 and the change suggested to Section 904.13 and we would like to present the following information.

The proposal G 121-15 represents a change to the use of cooking appliances in Dormitory Cooking Facilities. Currently the International Building Code requires that the cooking area over a standard cooktop or range should be provided with an automatic fire extinguishing system to prevent unattended cooking fires. **This proposal would require that all installations comply with 904.13. However, a separate proposal has been submitted to change 904.13 which would create a significant challenge. We have strong objections to the changes to 904.13 that have been proposed in another section and which would require a maximum temperature on the heating element of the range or cooktop. For the proposal G121-15, we have questions on the provision of the interconnection of the hood-mounted extinguishing system with the fuel or electric supply. We suggest that this provision be further modified or additional information be supplied.**

It is quite possible that at the time the proposal was first developed, the maker of the proposal was unaware of major changes taking place in the appliance safety standards. The appliance industry, in cooperation with other stakeholders, has already proposed and gained the acceptance of new cooking safety requirements in the applicable US voluntary safety standard. The cooking-related proposals included in the 2015 IBC proposal are unnecessary, duplicative, design restrictive, and ill-advised. They should be withdrawn.

AHAM is a strong supporter of the consensus standards process. We participate in over 50 safety standards for our industry. We help to develop standards committees, help to populate them, and help to support full participation by all stakeholders. In the case of safety of cooking appliances, the consensus process has considered and is still working on product safety standards.

The UL 858 standard for household electric ranges and cooktops in the US recently released a new test requirement for coil cooktops to reduce the risk of fires from unattended cooking. The test involves running the burner in worst-case scenarios with cooking oil in a pan, and the range must prevent the oil from igniting. This requirement will be in place on apply to all ranges and cooktops with coil heating elements within the next few years. A similar cooking safety test procedure is currently under review for inclusion in the Canadian Electric Range Standard, CSA 22.2 No. 61. Similar testing requirements are being developed for other cooking

technologies, such as radiant and gas cooktops and ranges.

There are a number of reasons why this proposal would cause severe harm not only to the cooking appliance industry, but also to consumers through a very design-specific requirement.1.

1. One of the provisions of this proposal, G121-15 is the change to 904.13.1 to require "Interconnection of the fuel and electric power supply shall be in accordance with Section 904.12.2." While on the outset, this may seem to be a very logical requirement, it must be considered very carefully, particularly with gas ranges. To immediately discontinue the gas fuel supply and then re-connect the range later, provisions need to be made to ensure that the range or cooktop has valves designed not to permit a free-flow of gas fuel. We suggest that this needs further study.
2. This proposal refers to Section 904.13, has been proposed to change to require a maximum temperature on the cooking element of 350 deg C. That proposal is very design specific. The proposal seeks to restrict the temperature of the burner and not the pan or vessel that is used to cook. All research to date notes that the issue at question is the temperature in the pan/vessel in which food materials are placed. Thus, even though the issue is the temperature in the pan or vessel, this requirement would restrict the actual burner. There are no test methods, descriptions of how the test would be conducted and no understanding of how a product would be evaluated.
3. This proposal to 904.13 seems to be written without fully understanding the information on or the technologies in development to prevent unattended cooking fires.
4. AHAM and its members are very aware of the tragic situations with unattended cooking fires. For many years, AHAM, standards developers, staff at the U.S. Consumer Product Safety Commission (CPSC), NFPA, and other stakeholders have been meeting to develop effective solutions to the issue of unattended cooking fires. Considerable research has been done, much of which has noted the importance of providing a solution that would reduce cooking fires but allow a full range of cooking to the consumer.
5. In October 2014, AHAM made a proposal to UL Standard 858 that would, for the first, time create a test in the standard for coil-element cooktops to simulate an unattended cooking situation and require that cooking oil not ignite. This will eventually be extended to glass-ceramic and eventually gas cooktops. However, even the concept feasibility of such a pan temperature control mechanism has only been demonstrated at this time for coil-element ranges. Proposal G 121-15 and the accompanying 904.13 would only allow purchasing people to choose to install coil-element ranges.
6. Nothing in this proposal mentions the need for such a solution or device to be safety certified. We think this is a gross error in the standard and which could leave consumers, college dormitory administrators, and housing authorities at great risk.
7. One of the problems with this proposal for adding a maximum temperature to 904.13 is that it is not restricted to just electric cooking appliances. Thus, if this were applied to a gas range, and the fire extinguishing system is activated, it could extinguish the fire but leave the gas supply continuing to supply raw natural gas. No mention is made of how to re-start the range. If a gas range did have the fuel supply interrupted, but was suddenly re-connected to a gas supply without completely resetting the range controls, raw natural gas could escape. We do not believe the Committee intended this to occur.
8. This proposal is very design restrictive for the International Building Code. We believe such a requirement should be in the product safety standard. It is one thing to require the accompaniment of an over-the-range fire protection or fire extinguishing system. This is certainly within the scope of the requirements of the ICC or IBC. However, dictating specific design or performance parameters for a piece of individual equipment without knowing all the other requirements is inappropriate for the ICC or IBC.
9. Repeated references to 'domestic' appliances appear as though it would encompass household appliances. While compliance with any of these new

requirements would only be required of those wishing to sell into the College Dormitory market, we see a substantial concern that additional sources of regulation could be broadened to many other product market categories.

10. For these reasons, we believe this proposal needs further consideration and should be modified accordingly.

It is difficult for AHAM to give advice to the General Building Code Committee on fire prevention. However, it would seem that without the proposed changes the International Building Code contains adequate coverage for college dormitory facilities with the requirement of fire suppression systems.

It is also difficult for AHAM to comment on the Cost Impact statement accompanying the code change. First, we do not normally consider cost when reviewing a safety standards change. However, since ICC and IBC do consider this, we would ask that consideration be given to the impact of a timer control addition and the impact of a range that has a temperature limit to the burners.

Wayne Morris

Vice President, Technical Operations & Standards

Association of Home Appliance Manufacturers (AHAM)

Bibliography: The Association of Home Appliance Manufacturers (AHAM) represents manufacturers of major, portable and floor care home appliances, and suppliers to the industry. AHAM's membership includes over 150 companies throughout the world. In the U.S., AHAM members employ tens of thousands of people and produce more than 95% of the household appliances shipped for sale. The factory shipment value of these products is more than $30 billion annually. The home appliance industry, through its products and innovation, is essential to U.S. consumer lifestyle, health, safety and convenience. Through its technology, employees and productivity, the industry contributes significantly to U.S. jobs and economic security. Home appliances also are a success story in terms of energy efficiency, safety, and environmental protection. New appliances often represent the most effective choice a consumer can make to reduce home energy use and costs.

AHAM is also a standards development organization and has authored numerous appliance performance testing standards used by manufacturers, consumer organizations and governmental bodies to rate and compare appliances. In partnership with the CSA Group, and UL Environment, AHAM developed the first sustainability standards for home appliances. AHAM's consumer safety education program has educated millions of consumers on ways to properly and safely use appliances such as portable heaters, clothes dryers, and cooking products. AHAM participates in the development of over 60 product safety standards and has authored numerous improvements to these standards.

Public Comment 3:

Proponent : Region VII, representing ICC Region VII (admin@iccregionvii.org) requests Disapprove.

Commenter's Reason: Section 420.7.1 Item # 2 is redundant and item # 3 is requiring additional suppression, section 904.13 does not required suppression on a domestic appliance used in a domestic situation in an already sprinklered structure.

G121-15

G123-15

420.8 (New), 420.8.1 (New), 420.9 (New)

Proposed Change as Submitted

Proponent : Carl Baldassarra, P.E., FSFPA, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technologies Committee (CTC@iccsafe.org)

2015 International Building Code

Add new text as follows:

420.8 Group I-1 cooking facilities. In Group I-1 occupancies rooms or spaces that contain a cooking facilities with domestic cooking appliances shall be in accordance with all the following criteria:

1. In Group I-1 Condition 1 occupancies, the number of care recipients served by one cooking facility shall not be greater than 30.
2. In Group I-1 Condition 2 occupancies, the number of care recipients served by one cooking facility and within the same smoke compartment shall not be greater than 30.
3. The types of domestic cooking appliances permitted shall be limited to ovens, cooktops, ranges, warmers and microwaves.
4. The space containing the domestic cooking facilities shall be arranges so as not to obstruct access to the required exit.
5. Domestic cooking hoods installed and constructed in accordance with Section 505 of the International Mechanical Code shall be provided over cooktops or ranges.
6. Cooktops and ranges shall be protected in accordance with Section 904.13.
7. A shut-off for the fuel and electrical supply to the cooking equipment shall be provided in a location that is accessible only to staff.
8. A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes.
9. A portable fire extinguisher shall be provided. Installation shall be in accordance with Section 906 and the extinguisher shall be located within a 30-foot (9144 mm) distance of travel from each domestic cooking appliance.

420.8.1 Cooking facilities open to the corridor. Cooking facilities located in a room or space open to a corridor, aisle or common space shall comply with Section 420.8.

420.9 Group R cooking facilities. In Group R occupancies, cooking appliances used for domestic cooking operations shall be in accordance with Section 917.2 of the *International Mechanical Code*.

Reason: The intent of the two proposals for a new Section 420.7 and 420.8 is to allow the same 'home style' environment for Group I-1 that is permitted to Sections 407.2.5 and 407.2.6 for Group I-2 nursing homes.

Section 420.8 and 420.8.1: This additional protection feature requirement clarifies

that kitchens in typical memory care neighborhood plans or assisted living neighborhood plans are allowed in contiguous spaces to rooms used for sleeping. This proposal then implements the additional protection features required in similar applications from Group I-2 as was approved for the 2015 IBC is Section 407.
Section 420.9: While Group R (other than Group R-4) outside the scope of the CTC Care study group, since Section 420 includes provisions for Group I-1 and R, it was felt that something had to be said regarding Group R cooking facilities following the provisions of Group I-1 cooking facilities. The intent of Section 420.9 is to allow for hotel rooms, assisted living suites, dorm suites, and small congregate residences to be allowed to use the provisions in the IMC for domestic cooking appliances. If the hotel or dormitory has a central restaurant or cafeteria, this section would not be applicable because it would be commercial cooking.
A correlative change to IFC Section 904.13 for installation of the cooking systems will be provided in Group B. Basically the Group I-1 will follow the same limits as the Group I-2, Condition 2. This proposal is coordinated with a proposal coming from FCAC and BCAC for Group I-2, Condition 1 cooking facilities.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will increase the cost of construction
This is an increase in cost for Group I-1 facilities that use this option, however, it will allow for greater freedom in design. Alternatively, requiring a commercial appliance and hood in place of the domestic appliance could be more costly. This should not be a change for domestic cooking appliances in Group R.

G123-15 : 420.8 (New)-BALDASSARRA4912

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: During the development of the 2015 IBC, such cooking facilties were allowed for I-2 facilities. I-1 with a concept of being more home-like should also be allowed the same options based on the same safeguards.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Wayne Morris, Association of Home Appliance Manufacturers, representing Association of Home Appliance Manufacturers (wmorris@aham.org) requests Disapprove.

Commenter's Reason: The Association of Home Appliance Manufacturers (AHAM) is opposed to the Code Proposal G 123-15 in its present form together with the change suggested to Section 904.13 and we would like to present the following information. Proposal G 123.15 (page 479 of the monograph) pertains to Group I-1 facilities, such

as group home settings. **The proposal not only refers back to Section 904.13 but also would require a timer that would automatically shut off power within 120 minutes of initiation of cooking. The proposal also refers to Section 904.13 which has been proposed to be changed to require a maximum burner temperature.**

The Association of Home Appliance Manufacturers (AHAM) represents manufacturers of major, portable and floor care home appliances, and suppliers to the industry. AHAM's membership includes over 150 companies throughout the world. In the U.S., AHAM members employ tens of thousands of people and produce more than 95% of the household appliances shipped for sale. The factory shipment value of these products is more than $30 billion annually. The home appliance industry, through its products and innovation, is essential to U.S. consumer lifestyle, health, safety and convenience. Through its technology, employees and productivity, the industry contributes significantly to U.S. jobs and economic security. Home appliances also are a success story in terms of energy efficiency, safety, and environmental protection. New appliances often represent the most effective choice a consumer can make to reduce home energy use and costs.

AHAM is also a standards development organization and has authored numerous appliance performance testing standards used by manufacturers, consumer organizations and governmental bodies to rate and compare appliances. In partnership with the CSA Group, and UL Environment, AHAM developed the first sustainability standards for home appliances. AHAM's consumer safety education program has educated millions of consumers on ways to properly and safely use appliances such as portable heaters, clothes dryers, and cooking products. AHAM participates in the development of over 60 product safety standards and has authored numerous improvements to these standards.

The proposal G 123-15 represents a change to the use of cooking appliances in I-1 group home type cooking facilities. Currently the International Building Code requires that the cooking area over a standard cooktop or range should be provided with an automatic fire extinguishing system to prevent unattended cooking fires. The proposal not only refers back to Section 904.13 but also would require a timer that would automatically shut off power within 120 minutes of initiation of cooking.

It is quite possible that at the time the proposal was first developed, the maker of the proposal was unaware of major changes taking place in the appliance safety standards. The appliance industry, in cooperation with other stakeholders, has already proposed and gained the acceptance of new cooking safety requirements in the applicable US voluntary safety standard. The cooking-related proposals included in the 2015 IBC proposal are unnecessary, duplicative, design restrictive, and ill-advised. They should be withdrawn.

AHAM is a strong supporter of the consensus standards process. We participate in over 60 safety standards for our industry. We help to develop standards committees, help to populate them, and help to support full participation by all stakeholders. In the case of safety of cooking appliances, the consensus process has considered and is still working on product safety standards. We request that the ICC IBC Committee allow the standards to exist in the product safety standards and note only that the Code requires products that comply with the applicable safety standards and are safety certified for that installation.

The UL 858 standard for household ranges in the US recently released a new test requirement for coil cooktops to reduce the risk of fires from unattended cooking. The test involves running the burner in worst-case scenarios with cooking oil in a pan, and the range must prevent the oil from igniting. This requirement will be in place on apply to all ranges and cooktops with coil heating elements within the next few years. A similar cooking safety test procedure is currently under review for inclusion in the Canadian Electric Range Standard, CSA 22.2 No. 61. Similar testing requirements are being developed for other cooking technologies, such as radiant and gas cooktops and ranges.

There are a number of reasons why this proposal would cause severe harm not only to the cooking appliance industry, but also to consumers through a very design-specific requirement.

1. The proposal in G123-15 for a timer to shut off power after 120 minutes is very design restrictive. It also has no details nor does it explain whether this is to be part of the range or part of the power/fuel system to the range. Such a requirement could be quite risky in a gas cooktop. To shut the fuel source off is one thing, but to then re-engage the fuel without proper controls could increase the risk. We ask that the Committee to remove this requirement #8, "A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes." There are no test methods, descriptions of how the test would be conducted and no understanding of how a product would be evaluated.
2. The proposal 420.8 No. 8 requires the use of some form of a timer on the power source. This is not currently part of the design of a residential cooktop or range. While this could be added to the building or installation design, this should be carefully considered.
    1. This would restrict the use to electric ranges and cooktops only. It is difficult to imagine such a timer on a gas-fueled range, since not only would the controls be removed at 120 minutes but there is no provision for safe re-start of the gas range.
    2. Safe re-start is a major concerns of the range and cooktop manufacturers. If the power source is severed at the 120 minute mark, and power is later restored, there is a chance that raw gas would continue to flow if the burner controls are left in the "on" position.
    3. In addition, it is unclear what is the reason behind the 120 minute requirement. Considering that many pieces of research note that it is possible to have a cooking fire in less than 5 minutes, we see no rationale for the 120 minute proposal.

3. The proposal states that "A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes." But, some baking functions in ovens take more than 120 minutes and the proposal does not distinguish between ovens and cooktop surfaces. It just says "...cooking appliances..." Many operation on the surface cooking, such as canning, require more time than 120 minutes. Several baking functions, such as slow cooking meats, require more than 120 minutes. This proposal for automatic shut-off does not have any details about testing, how the device is to be applied, if it is on the product, how the deactivation will be accomplished and more important how it will be re-activated. There are no requirements in the applicable US safety standards for such a provision. This leaves the accomplishment of this to anyone's guess. This proposal should be made to the UL 858 and ANSI Z21.1 safety standards.

4. Regarding the reference to 904.13 and the new proposal to that section on a maximum temperature limit on the burner, we believe it is inappropriate for a consensus standards development committee to develop a standards proposal that has only one technical solution and is written to promote one particular product on the market. We doubt the Committee fully understood this at the time. While this may seem to be a simple design requirement, it seems to be an attempt to promote one product and to require it in the Code.

5. This proposal seems to be written *without* fully understanding the information on or the technologies in development to prevent unattended cooking fires.

6. AHAM and its members are very aware of the tragic situations with unattended cooking fires. For many years, AHAM, standards developers, staff at the U.S. Consumer Product Safety Commission (CPSC), NFPA, and other stakeholders have been meeting to develop effective solutions to the issue of unattended cooking fires. Considerable research has been done, much of which has noted the importance of providing a solution that would reduce cooking fires but allow a full range of cooking to the consumer.

7. In October 2014, AHAM made a proposal to UL Standard 858 that would, for the first, time create a test in the standard for coil-element cooktops to simulate an unattended cooking situation and require that cooking oil not ignite. This will eventually be extended to glass-ceramic and eventually gas cooktops. However, even the concept feasibility of such a pan temperature control mechanism has only been demonstrated at this time for coil-element ranges. Proposal G 123-15 and the

accompanying 904.13 would only allow purchasing people to choose to install coil-element ranges.

8. Nothing in the proposal to 904.13 for a maximum heating element temperature mentions the need for such a solution or device to be safety certified. We think this is a gross error in the standard and which could leave consumers, I-1 home administrators, and housing authorities at great risk.

9. This proposal is very design restrictive for the International Building Code. We believe such a requirement should be in the product safety standard. It is one thing to require the accompaniment of a over-the-range fire protection or fire extinguishing system. This is certainly within the scope of the requirements of the ICC or IBC. However, dictating specific design or performance parameters for a piece of individual equipment without knowing all the other requirements is inappropriate for the ICC or IBC.

10. Repeated references to 'domestic' appliances appears as though it would encompass household appliances. While compliance with any of these new requirements would only be required of those wishing to sell into the I-1 group home market, we see a substantial concern that additional sources of regulation could be broadened to many other product market categories. The proposed additions to the IBC, IMC and IFC could potentially encroach on regulations on household appliances.

It is difficult for AHAM to give advice to the General Building Code Committee on fire prevention. However, it would seem that without the proposed changes, the International Building Code contains adequate coverage for I-1 group home facilities with the requirement of fire suppression systems.

It is also difficult for AHAM to comment on the Cost Impact statement accompanying the code change. First, we do not normally consider cost when reviewing a safety standards change. However, since ICC and IBC do consider this, we would ask that consideration be given to the impact of a timer control addition and the impact of a range that has a temperature limit to the burners. Depending on how this is configured, this could have a cost impact on Group R type domestic residential cooking appliances. Today, these appliances are not equipped with this type of shut-off timer mechanism and are not equipped with maximum temperature controls on burners.

Wayne Morris

Vice President, Technical Operations and Standards

Association of Home Appliance Manufacturers

Washington, DC

Bibliography: UL Standard 858 Safety of Electric Ranges
Change to standard to include Section 58, Abnormal Operation Test for Coil Element Cooktops

Addition of test to prevent ignition of cooking oil.

June 2015

G123-15

G125-15

422.6 (New), 604.2.1(IBC [F] 2702.2.1) (New)

Proposed Change as Submitted

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

Add new text as follows:

422.6 Electrical systems In *ambulatory care facilities*, the essential electrical system for electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of Chapter 27 and NFPA 99.

2015 International Fire Code

604.2.1(IBC [F] 2702.2.1) Ambulatory care facilities. Essential electrical systems fo*r ambulatory care facilities* shall be in accordance with Section 422.6 of the *International Building Code*.

Reason: The IBC currently has no direction on whether essential electrical systems (such as emergency generator) are required at ambulatory care facilities. This proposal adds the direction to go to NFPA 99, the Healthcare Facilities Code for that assessment. NFPA 99 provides a risk based approach to determine the need for an essential electrical system, what class system is required and general design requirements for each type of system.
The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will increase the cost of construction
The code change proposal will increase the cost of construction. Adding an essential electrical system will add the cost of a generator, as well as maintenance and testing over what is required currently in the IBC/IFC. However, any medicare certified ambulatory care facilities are required by federal CMS regulations to have this system, therefore, the cost of construction will not increase. Note that not all ambulatory care facilities are medicare certified.

G125-15 : 422.6 (New)-WILLIAMS4166

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The proposal provides clarity for the electrical systems installed in ambulatory care facilities. It provides consistent regulations to those applying to Group I occupancies.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

407.10 Electrical systems. In Group I-2 occupancies, the essential electrical system for electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of Chapter 27 and NFPA 99. In case of conflict between the provisions of Chapter 27 and those of NFPA 99, the provisions of Chapter 27 shall apply.

422.6 Electrical systems In *ambulatory care facilities*, the essential electrical system for electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of Chapter 27 and NFPA 99.– In case of conflict between the provisions of Chapter 27 and those of NFPA 99, the provisions of Chapter 27 shall apply.

Commenter's Reason: There have been a number of instances where the requirements of NFPA 99 have differed from those of the National Electrical Code (NFPA 70), which is what Chapter 27 in the IBC refers to. In particular there have been multiple debates at various hearings, for example regarding selective coordination in case of outages. The IBC needs to be clear which is the governing requirement in case of conflict (now or in future editions) and it is the IBC (which in this case, in Chapter 27, refers to the National Electrical Code), which must be the prevailing requirement.
Similar language to that in the original proposal is contained in section 407.10 of the IBC and that section is also being proposed to be modified by this comment, for consistency.

G125-15

G127-15

427 (New), 427.1 (New)

Proposed Change as Submitted

Proponent : Lee Kranz, City of Bellevue, WA

2015 International Building Code

Add new text as follows:

SECTION 427
MEDICAL GAS SYSTEMS

427.1 Medical gas systems. Medical gas systems shall comply with Section 5306 of the *International Fire Code.*

Reason: Provisions for medical gas installations are currently found in Section 5306 of the IFC but many of the requirements for these installations require a building permit and should also be regulated from the IBC. There are no substantive changes proposed to the language found in the IFC. Examples of similar references to other codes and standards are found in Sections 425 & 916.

Cost Impact: Will not increase the cost of construction
Inserting a reference to the medical gas regulations currently found in the IFC will not change the cost of installation.

G127-15 : 427 (New)-KRANZ3770

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There was reluctance to creating a whole new section to just provide a pointer to provisions in the Fire Code. There are construction related criteria in the IFC, but it was also pointed out that additional provisions are also in the IPC. The was support for moving the construction provisions found in the IFC into the IBC rather than simply a pointer.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Robert Snyder, City of Bellevue, representing Washington Association of Building Officials Technical Code Development Committee (rsnyder@bellevuewa.gov) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

427.1 ~~**Medical gas systems**~~ **General.** ~~Medical gas~~ Storage of medical gases at health care-related facilities intended for patient care, inhalation or sedation including, but not limited to, analgesia systems for dentistry, podiatry, veterinary and similar uses shall comply with ~~Section 5306~~ Sections 427.2 through 427.2.3 in addition to requirements of Chapter 53 of the*International Fire Code.*

427.2 **Interior supply location.** Storage of medical gases at health care-related facilities intended for patient care, inhalation or sedation including, but not limited to, analgesia systems for dentistry, podiatry, veterinary and similar uses shall comply with Sections 427.2 through 427.2.3 in addition to other requirements of Chapter 53 of the *International Fire Code*.

427.2.1 **One-hour exterior room.** A 1-hour exterior room shall be a room or enclosure separated from the remainder of the building by fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both, with a fire-resistance rating of not less than 1 hour. Openings between the room or enclosure and interior spaces shall be provided with self-closing smoke and draft-control assemblies having a fire protection rating of not less than 1 hour. Rooms shall have not less than one exterior wall that is provided with not less than two vents. Each vent shall be not less than 36 square inches (0.0223 m^2) in area. One vent shall be within 6 inches (152 mm) of the floor and one shall be within 6 inches (152 mm) of the ceiling. Rooms shall be provided with at least one automatic sprinkler to provide container cooling in case of fire.

427.2.2 **One-hour interior room.** Where an exterior wall cannot be provided for the room a 1-hour interior room or enclosure shall be provided and separated from the remainder of the building by fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711 or both, with a fire resistance rating of not less than 1 hour. Openings between the room or enclosure and interior spaces shall be provided with self-closing smoke and draft control assemblies having a fire protection rating of not less than 1 hour. An automatic sprinkler system shall be installed within the room. The room shall be exhausted through a duct to the exterior. Supply and exhaust ducts shall be enclosed in a one-hour rated shaft enclosure from the room to the exterior. Approved mechanical ventilation shall comply with the I*nternational Mechanical Code* and be provided with a minimum rate of one cubic foot per minute per square foot (0.00508 $m^3/(s.m^2)$ of the area of the room.

427.2.3 **Gas cabinets.** Gas cabinets shall be constructed in accordance with Section 5003.8.6 of the *International Fire Code* and shall comply with the following:

1. Constructed of not less than 0.097 inch (2.5 mm) No. 12 ga steel.
2. Provided with self-closing limited access ports or noncombustible windows to give access to equipment controls.
3. Exhausted to the exterior through dedicated exhaust duct system installed in accordance with Chapter 5 of the International Mechanical Code.

4. Supply and exhaust ducts shall be enclosed in a one-hour rated shaft enclosure from the cabinet to the exterior. The average velocity of ventilation at the face of access ports or windows shall be not less than 200 feet per minute (1.02 m/s) with a minimum of 150 feet per minute (0.076 m/s) at any point of the access port or window.
5. Provided with an automatic sprinkler system internal to the cabinet.

Commenter's Reason: Provisions for the construction of medical gas system storage facilities are currently found in Section 5306 of the International Fire Code. Since most of the medical gas construction related requirements in the IFC reference the IBC, it is logical for those requirements to be incorporated into the IBC also. Only construction related requirements, with no substantive changes, are being copied into the IBC.This proposal duplicates those requirements in the IBC by creating a new Section in Chapter 4. At the Code Development Committee Hearings, while the committee was reluctant to approve the creation of a whole new section to provide a pointer to the medical gas construction provisions in the IFC only, the committee indicated support of moving those provisions into the IBC which is what this public comment accomplishes.

G127-15

G128-15

427 (New), 427.1 (New), 427.2 (New), 427.3 (New), 427.4 (New)

Proposed Change as Submitted

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org); Jason Thompson, Masonry Alliance for Codes and Standards, representing Masonry Alliance for Codes and Standards (jthompson@ncma.org)

2015 International Building Code

Add new text as follows:

SECTION 427
HIGH RISK AREAS

427.1 General. The provisions of Sections 427.2 though 427.4 shall apply to buildings or structures classified as Risk Category II, III or IV where either of the following conditions exists:

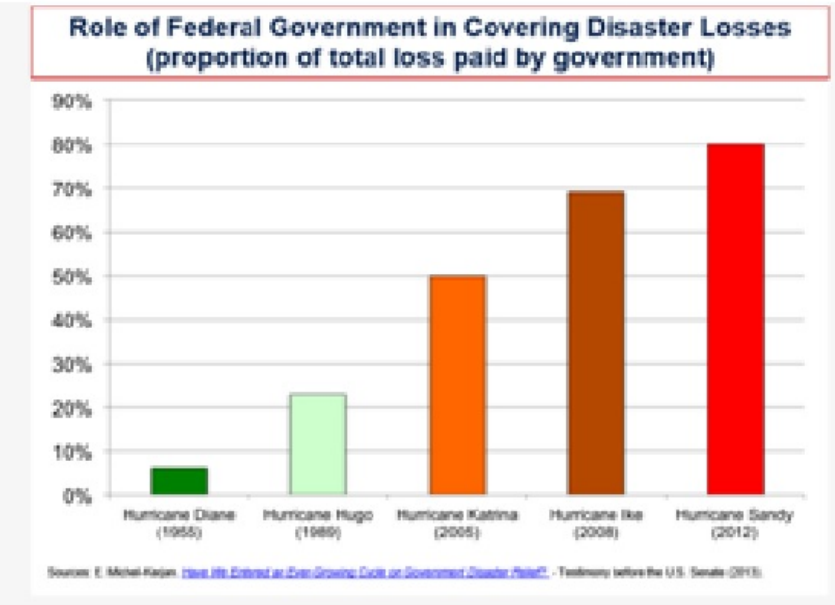
1. Located in Hurricane-Prone Regions
2. Assigned to Seismic Design Category C or greater.

427.2 Height in feet. The maximum height, in feet, of a building shall not exceed the limits specified in Table 504.3 for non-sprinklered (NS) buildings.

427.3 Number of stories. The maximum number of stories of a building shall not exceed the limits specified in Table 504.4 for non-sprinklered (NS) buildings.

427.4 Allowable area. The maximum allowable area of a building shall not exceed the limits specified in Table 506.2 for non-sprinklered (NS) buildings.

Reason: Natural disasters, in areas shown to be at high risk, continue to cost this nation billions of dollars each year in damaged and destroyed property, clean-up, lost revenue, displacement of residents, re-building efforts and more. 650,000 housing units were damaged or destroyed and 300,000 business properties in New York and New Jersey during Hurricane Sandy in 2012, while an estimated 7 million were without power. An estimated 80 Billion dollars in FEMA money will be spent solely on re-building and repair costs from just one storm. Katrina, in 2005 was more costly, with $81 billion in construction costs and over 1500 deaths directly associated with the storm.



Studies by National Oceanic Atmospheric Administration (NOAA) show the trends for hurricanes to be on the increase through the year 2100 and the probability of seismic activity continues to increase based on studies and new maps released by the United States Geological Surveys (USGS). Low lying areas in coastal communities are at high risk of storm surge flooding. During and after these major events, damage to infrastructure and utilities is enormous. Major roadways can be destroyed or roadways impassable due to flooding and in addition the affected areas will experience large scale loss of power, loss of water, gas line ruptures and fire. Damage from fires after a high wind event, earthquake or storm surge can be devastating in both residential and commercial properties. The captions below show conflagration results from Hurricane Sandy – 2012 in both commercial and residential areas.

Emergency service resources are limited at best after a natural disaster and non-existent while a hurricane passes. Fires are left to burn until either they burn out or become accessible and become a priority. A fire within a building, with combustible construction, without an operational sprinkler system, is not likely to be controlled without passive fire containment. As recently as August 2014, the Napa Valley, CA area experienced an earthquake which caused moderate damage but still sustained 16 fires after the event.

While the safety of fire sprinklers during normal times has a very good track record, the fact is: fire sprinklers will not work without a water supply and may not work without electrical service. During seismic and flooding events, water mains and electrical services are often damaged, electric fire pumps fail to operate, diesel fire pumps and emergency generators fail to operate if flooded, water pressure levels will be significantly lower from broken lines within the system, and exterior fire exposure from buildings without protection increases the risk of fire spread.

Aftermath of Hurricane Sandy

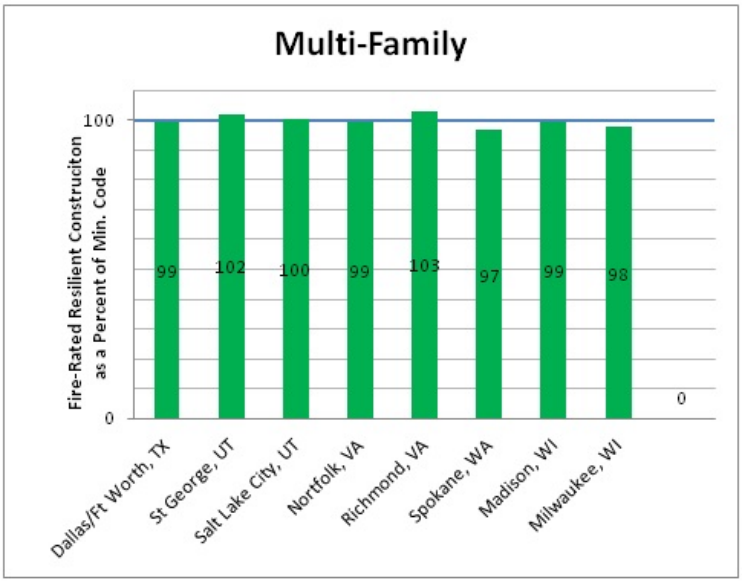
Even with clear evidence that sprinkler systems cannot be a reliable suppression source in high risk areas and historical evidence that natural disasters are increasing in number and severity, the building code still provides significant trade off incentives for sprinkler systems to allow buildings to be built bigger and higher while allowing reductions in passive fire protection. This code change recognizes that active fire protection during and after a natural disaster can not be relied upon to operate exposing structures to a level of fire protection that is dramatically less than the minimum intended by the building code. To assure a minimum level of fire protection consistent with the intent of the code following disasters, this change seeks to eliminate sprinkler trade-offs for height and area increases in high risk areas.

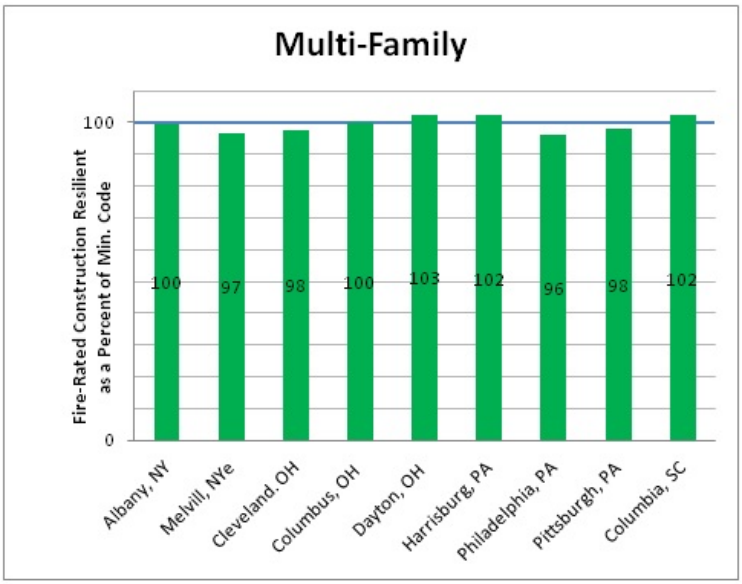
To accurately evaluate the relative construction cost it was determined that a multi-family residential structure should be schematically designed meeting all of the requirements of the International Building Code. Once designed, the buildings were reviewed for code compliance, and cost estimates would be prepared. The study was conducted by:
Architect & Engineer: Haas Architects Engineers1
Code Official: Tim E. Knisely2
Cost Estimation : Poole Anderson Construction3

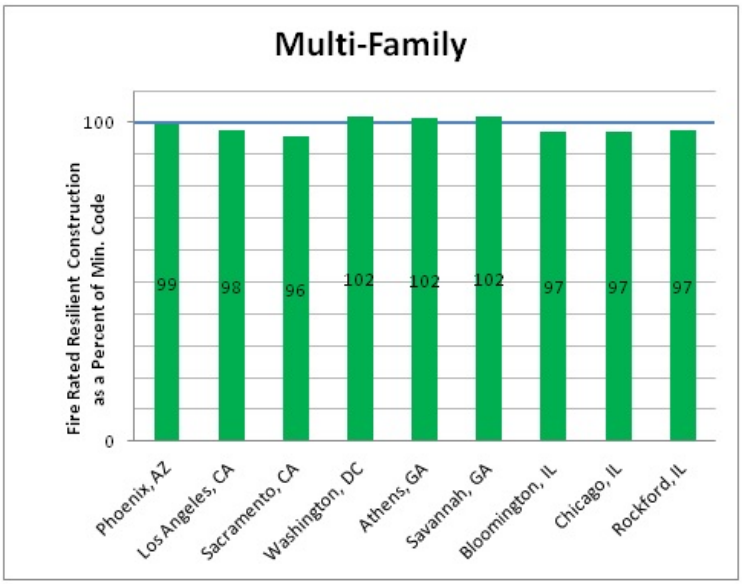
The building model chosen for the project was a 4 story multi-family residential structure encompassing approximately 25,000 gross square feet of building area per floor. The cost comparisons are based on the proposed target building assembled using a typical mix of one and two bedroom dwelling units

The following construction types and alternates were included in the evaluation:
Conventional Type V framing with Type V floor system
Alternate: Conventional Type VA framing with Type VA floor system
Non-combustible framing with fire-rated non-combustible floors (concrete on steel deck)
Fire-rated load bearing non-combustible construction with fire rated non-combustible floor system (block and plank)
The cost estimate for each building model included the complete fit out of each building with the exception of movable appliances and furniture. For more details on

the specific criteria visit: www.psfscac.org.







1Haas Architects Engineers is a multi-disciplinary architectural and engineering firm located in State College, Pennsylvania with a thirty year history of client centered service including commercial, single and multi-family residential, retail, and sports based projects.
2Tim E. Knisely is a senior fire and commercial housing inspector for the Centre Region Code Administration, in State College, Pennsylvania. Mr. Knisely currently holds a certification as a registered Building Code Official in the Commonwealth of Pennsylvania and holds more than eight certifications from the International Code Council. In addition, Mr. Knisely has been involved in the fire service for more than 20 years.
3Poole Anderson Construction is one of the largest building contractors in Central Pennsylvania with a 75 year history and an annual construction volume exceeding 60,000,000 dollars.

Bibliography: http://www.nytimes.com/2013/09/13/nyregion/fire-ravages-jersey-shore-boardwalk-rebuilt-after-hurricane-sandy.html?_r=0

http://www.cnn.com/2012/10/30/us/hurricane-sandy-color/index.html

Cost Impact: Will increase the cost of construction
To evaluate the cost impact for every occupancy and use, type of construction and building configuration is excessively burdensome for any proposed code change. In an effort to satisfy the request in the code development process that construction type determined by the proponent to be influence by cost was evaluated to the most significant cost potential impacts relative to this proposal, rectangular 4-story Type V multi-family dwellings. The independent third party studies indicate that the cost differential ranges between minus 3% to plus 3% for the most significant cost impact associated with the code change proposal which typically shifted the design from Type V construction to other Types of construction.

See reasoning statement

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee acknowledged that the issue of building resilience should be addressed, but it needs a more comprehensive, global discussion by a broad range of our constituents. This proposal is not the result of any such discussion. The codes have improved over the years. Buildings built under current codes are already more resilient compared to historic codes. The structural provisions for resisting earthquake, flooding and high wind have been enhanced numerous times. The building code can't control infrastructure; such is a local decision. This proposal would eliminate the incentives to install sprinklers. The committee did not find the cost impact estimates to be realistic. Overall the committee concluded that this proposal doesn't pass muster as a reasonable approach to the issue.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Approve as Submitted.

Commenter's Reason: Most occupancies are required to be sprinkled, thus the committee's concerns about reducing sprinkler incentives are unfounded. The cost study was performed by an independent third party and the results can be verified with actual cost data provided by Dodge. The committee was not provided any comparable study to substantiate there findings that the "cost impact estimates to be realistic". Most code proposals in the ICC are implemented using the ICC consensus process and do not require vetting in other venues before being adopted. What I am suggesting is that either the committee's reasoning statement is inappropriate or they are suggesting that the ICC is not a consensus process.

G131-15

503.1.4 (New), 1004.5

Proposed Change as Submitted

Proponent : Lee Kranz, City of Bellevue, WA, representing City of Bellevue, Washington

2015 International Building Code

Add new text as follows:

503.1.4 Occupied roofs. For the purposes of Tables 504.3 and 504.4, occupancies are permitted on roofs where the occupancy is permitted on the story immediately below. The area to be used as an occupied roof shall comply with the allowable area limitations of Table 506.2 for the intended occupancy.

> **Exception:** Occupied roofs are not required to comply with Tables 504.3 and 504.4 where located on buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and fire alarm notification in accordance with Section 907 is provided in the area of the occupied roof.

Revise as follows:

1004.5 Outdoor areas. *Yards*, patios, *courts*, occupied roofs, and similar outdoor areas accessible to and usable by the building occupants shall be provided with *means of egress* as required by this chapter. The *occupant load* of such outdoor areas shall be assigned by the *building official* in accordance with the anticipated use. Where outdoor areas are to be used by persons in addition to the occupants of the building, and the path of egress travel from the outdoor areas passes through the building, *means of egress* requirements for the building shall be based on the sum of the *occupant loads* of the building plus the outdoor areas.

Exceptions:

1. Outdoor areas used exclusively for service of the building need only have one *means of egress*.
2. Both outdoor areas associated with Group R-3 and individual dwelling units of Group R-2.

Reason: Occupied roofs host different occupancy groups but most often consist of Groups A and B. Means of egress, accessibility, structural design, access to plumbing fixtures and guardrails are already addressed in the code and must be provided for occupants utilizing the area of an occupied roof. Type of construction limitations based on occupancy classification are not currently addressed in the code for occupied roofs because an occupied roof in not considered to be a story, as defined in the code. If approved, this code change will clarify that occupied roofs are limited to the roof level of the highest story per Tables 504.3 and 504.4 for the applicable occupancy and must comply with the limitations of Table 506.2 for the area of the roof to be occupied even though it is not considered to be a "story". The proposed exception allows occupied roofs to be located on any story and at any height in a building protected with an automatic sprinkler system throughout and with fire alarm notification in the area of the occupied roof. The exception is appropriate since smoke will not accumulate on an occupied roof as it does inside

the building and there is an added level of protection provided by the sprinkler and fire alarm systems.

"Occupied roofs" is proposed to be added to Section 1004.5 to clairfy that they shall be provided with means of egress as required by Chapter 10.

Cost Impact: Will increase the cost of construction
This code change will require additional cost due to a new requirement to install sprinkler protection and fire alarm notification in some cases to accommodate an occupied roof on a building that may not otherwise require these systems.

G131-15 : 503.1.4 (New)-KRANZ3867

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee found this proposal really confusing. They found the requirement for roof use to be related to the use of the story below totally inappropriate as the use of the roof my be totally different that those located on the top story. The reference to Section 506.2 was unclear whether the intent was addressing the roof use or the whole building. Adding 'occupied roofs' into Section 1004.5 makes sense and should be included in anything the is returned. The committee later expressed encouragement to the proponents of all the occupied roof proposals to attempt to work together to create a solution for consideation at the public comment hearings.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Lawrence Lincoln, representing Utah Chapter of ICC (don.davies@slcgov.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

503.1.4 Occupied roofs. For the purposes of Tables 504.3 and 504.4, occupancies are permitted on roofs where the occupancy is permitted on the story immediately below. The area to be used as an occupied roof shall comply with the allowable area limitations of Table 506.2 for the intended occupancy~~.~~

> ~~**Exception:** Occupied roofs are not required to comply with Tables 504.3 and 504.4 where located on buildings~~ provided the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and fire alarm notification in accordance with Section 907 is provided in the area of the occupied roof.

Commenter's Reason: This is the best choice of the proposed changes dealing with occupied roof areas. The new IBC Section, 503.1.4, is concise and well-written.

This section allows an additional level above what would have been allowed for this proposed occupancy for the roof area.
The uses for an occupied roof are very limited. Reviewing the occupancy classifications reveals very few uses which would ever be applied on a roof. Judging from our experience, the only uses we have seen is an extension of the dining and drinking areas from the floor below or as an assembly area, for example, as an A-3 use for family gatherings or an exercise area or a tennis court. All other uses would be impractical, e.g. businesses, education, factories, institutions, mercantile, sleeping rooms, storage, utility and "H" occupancies.

To allow any uses on the roof without regards to the limitations of I.B.C. Tables 504.3 and 504.4 would not be reasonable. For example, we have seen an A-3 occupancy was proposed on the roof of a R-2 occupancy building of type IIIB construction of five stories height. In the table, that use would be limited to the third story since the building is required to be fire-sprinklered. But to allow an A-3 occupancy ~~it~~ on the roof of a five story building would leap-frog the same use above the fifth level; the code proposal would limit the A-3 use to the roof of a three story R-2 occupancy.

To remove all restrictions of allowable height and stories due to fire-sprinkling is not reasonable. There would not be any trade-off when the use is A-2 or A-3 occupancy since those uses on the roof would not be on the level of exit discharge. This would require sprinkling anyway as required in I.B.C. Section 903.2.1 and 903.2.1.3. The presence of a fire-sprinkling system would already allow this use on the top level to be one floor and 20 feet higher and the new provision, 503.1.4, would allow the same use on the roof of that level.

G131-15

G132-15

503.1.2.1 (New)

Proposed Change as Submitted

Proponent : Victor Cuevas (victor.cuevas@lacity.org)

2015 International Building Code

Add new text as follows:

503.1.2.1 Buildings on same property and buildings containing courts. For the purposes of determining the required wall and opening protection and roof-covering requirements, buildings on the same property and court walls of buildings over one story in height shall be assumed to have a propertly line between them.

Reason: For the purpose of life –safety and fire protection, it's important to establish opening limitations for courts.

Cost Impact: Will increase the cost of construction
The code change proposal increases construction cost where the separation between the assumed propertly line and the building facade will require fire resistant construction.

G132-15 : 503.1.2.1 (New)-CUEVAS4647

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal would have the net effect of requiring buildings to be protected from themselves. The committee did not find this necessary or appropriate. These issues are adequately addressed in other provisions of the code including Chapter 6 and 12.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Victor Cuevas, representing City of Los Angeles (victor.cuevas@lacity.org) requests Approve as Submitted.

Commenter's Reason: Will attempt to address the comments and concerns from the committee with the following two statements:
1- If there is no limit on the size of a court, a court can be built small enough to become a shaft, where smoke and fire can easily spread to create a dangerous condition.

2- In a multi-story building with an office space directly across the court yard from a lab space (could be 5 feet away, since there is no limit), currently does not have any limitation with the distance from each other. This can be a very dangerous fire condition since tere is no protection of openings limitation.

G135-15

504.5 (New)

Proposed Change as Submitted

Proponent : Stephen Skalko, representing Masonry Alliance for Codes and Standards (svskalko@cox.net)

2015 International Building Code

Add new text as follows:

504.5 Fire apparatus access roads Not less than two fire apparatus access roads shall be provided for buildings of Type III, IV or V construction that are four or more stories in height. The fire apparatus access roads shall comply with Section 503 of the *International Fire Code.* The termination point of the fire apparatus access roads on the building site shall be placed a distance apart not less than one-third of the length of the maximum overall diagonal dimension of the building or area to be served, as measured in a straight line.

Reason: As buildings of Type III, IV and V construction are being built to taller heights as allowed in Tables 504.3 and 504.4 of the code, they are representing a significant challenge for the fire service in responding to and attempting to extinguish or control the burning of the combustible structure, especially at the higher elevations. In addition, these buildings of combustible material necessitate response by larger numbers of fire fighters and fire apparatus. This is evident by the fires that have occurred in recent years for buildings of combustible framing under construction. A recent example is a major fire in Los Angeles with five stories of wood framing over a two story concrete podium on December 8, 2014. The apartment building known as the DaVinci required more than 250 firefighters to be dispatched to the scene. Access to parts of the building under fire was limited by the site layout.

Other recent large combustible framed building that experienced fires also presented significant challenges for the fire service include:

1. Monroe Apartments, Portland, OR August 8,2013
2. Student Apartments, Kingston, Ontario, CAN December 17, 2013
3. 550 East and 500 South, Salt Lake City, UT February 9, 2014
4. Commercial Building, Roxbury, MA, March 3, 2014
5. Mission Bay Project, San Francisco, CA March 11, 2014
6. Axis Apartments, Houston, TX , March 25, 2014
7. Beacon Street,Boston, MA March 27, 20t4
8. Gables Upper Rock, Rockville, MD Apri , 2014
9. SE Tech Cente rDrive, Vancouver, WA, June 19, 2014
10. Victoria Commons, Kitchener, Ontario, CAN, July 22, 2014
11. Apollo Way,Madison, WI August 8, 2014

This proposal will require at least two fire apparatus access roads be provided for these taller buildings of combustible construction to assist the fire service in responding to and possibly gaining early control of the fire. To insure reasonable remoteness of the location of these access roads on site they are being required to be placed a distance equal to 1/3 the overall diagonal of the building similar to criteria for remoteness of exits and exit access in Section 1007.1.1.

Cost Impact: Will increase the cost of construction
This proposal is expected to increase the cost of construction due to the additional fire apparatus access roads required on site. This increased cost however is necessary to reduce the risk of damage to adjacent properties due to fire exposure and provide the fire service with improved access for firefighting response to these taller buildings of combustible construction.

G135-15 : 504.5 (New)-SKALKO5797

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal would have significant cost impacts to a reasonable construction type. The code already addresses the differences between wood frame construction versus other materials in the height and area tables. If this were to be adopted, it either belongs in Chatper 33 which addresses safeguards during construction or in the IFC. The code provides for the local code official to provide firefighting access during construction; such is a local issue that shouldn't be overridden in the national code. The committee saw this as having a killing effect on development of housing in locations which are infills to the existing urban fabric. The proposal would have a permanent impact on a building for an issue that appears to be primarily related to the construction phase of projects. There was no justification provided for the proposed 1/3 diagonal separation of the proposed roads.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Approve as Submitted.

Commenter's Reason: Quote from fire services regarding condominium fire in Ponte Vedra, FL on July 13, 2015:
"We had a heavy fire load upon arrival, so we were essentially playing catch up as soon as we got here. The location of the building, while one side gives us good access, the opposite side of the structure, essentially, there's very little access," Robshaw said. "The other building is very close to it, so it's difficult for us to get back there. That is where the main body of the fire was located. So really one of our primary objectives, initially, was accessing that area and then preventing the adjacent structure from becoming involved."

Clearly there is a need to assure access for fire fighting activities and to mitigate damage to adjacent properties.

Public Comment 2:

Proponent : Stephen Skalko, Stephen V. Skalko, P.E. & Associates, LLC, representing Masonry Alliance for Codes and Standards requests Approve as Modified by this Public

Comment.

Modify as Follows:

2015 International Building Code

~~504.5~~ 3302.4 Fire apparatus access roads *No change to text.*

Commenter's Reason: One of the reasons the General Code Committee gave for disapproval of G135-15 was that these provisions should be placed in Chapter 33 of the IBC, which covers safeguards during construction. This public comment modifies the original proposal by relocating the requirements to Chapter 33.

In addition, the Committee reason stated this proposal would have a killing effect on development of housing in locations which are infills to the existing urban fabric. This is not necessarily the case because many infill projects are on properties which have access to at least two public streets or to a public street and an alley. And for those projects where the property is bounded by buildings on three sides, such as urban downtowns, it would be better not to permit buildings of this type of construction on those limited access properties to reduce risk from fire that these buildings of combustible materials pose to adjacent properties. This limitation is consistent with the property protection objective of the code

The Committee also must not have seen the last sentence of the reasoning statement that explained the 1/3 diagonal for remoteness of these access roads. As noted in the original reason, the use of 1/3 of the overall diagonal of the building is to provide some level of remoteness to reduce the likelihood that both access roads would be unusable. This value is similar to the criteria for remoteness of exits and exit access in Section 1007.1.1.

Besides the fires listed in the original reasoning statement a recent fire in the Belleza condominium complex at Ponte Vedra Beach, Florida on July 13th, is another example of the need for adequate access to these types of buildings. After the fire was under control St. Johns County Fire-Rescue Capt. Jeremy Robshaw was quoted as saying " "*We had a heavy fire load upon arrival, so we were essentially playing catch up as soon as we got here. The location of the building, while one side gives us good access, the opposite side of the structure, essentially, there's very little access. The other building is very close to it, so it's difficult for us to get back there. That is where the main body of the fire was located. So really one of our primary objectives, initially, was accessing that area and then preventing the adjacent structure from becoming involved*." [http://www.news4jax.com/news/fire-causes-evacuation-at-timberwalk-apartments/34127358].

More than one fire department access road to these types of buildings is essential to give the fire service ample opportunity stage an attack if a fire should occur and to keep the risk of fire spread to other properties at an acceptable level.

Recommend APPROVAL AS MODIFIED for G 135-15.

G135-15

G136-15
505.2

Proposed Change as Submitted

Proponent : Stephen DiGiovanni, Clark County Building Department (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

505.2 Mezzanines. A *mezzanine* or *mezzanines* in compliance with Section 505.2 shall be considered a portion of the *story* below. Such *mezzanines* shall not contribute to either the *building area* or number of *stories* as regulated by Section 503.1. The area of the *mezzanine* shall be included in determining the *fire area*. The clear height above and below the *mezzanine* floor construction shall be not less than 7 feet 6 inches (2286 mm).

Exception: The clear height above and below the mezzanine shall not be less than 7 feet (2134 mm) where occupant loads are equal to or less than those shown in Table 1006.2.1.

Reason: Mezzanines are grouped with equipment platforms in the code. This is consistent with the thought that mezzanines are primarily small areas for equipment or storage. However the size of the mezzanine is only limited by the area of the floor below; larger floor plates allow larger mezzanines. The code encourages the use of large mezzanines since they do not count as stories and do not contribute to building area. The occupancy group of mezzanines is also not limited. As a consequence of these two conditions the code allows large occupancy loads in mezzanines. Greater occupancy loads increases evacuation times. Section 1208.2 dictates a minimum ceiling height of 7'-6" for occupiable spaces, habitable spaces and corridors. Section 1003.2 requires the clear height of a means of egress be at least 7-6" with some exceptions. One exception being a mezzanine designed in accordance with Section 505. By limiting the occupant loads to those shown in Table 1006.2.1 for the threshold at which additional means of egress would be required would reduce any potential risk of endangering occupant in a fire event.

Cost Impact: Will increase the cost of construction
For larger mezzanines, this proposal will increase the cost of construction by requiring taller ceiling heights than are currently required by code.

G136-15 : 505.2-DIGIOVANNI3826

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The code change is onorous for mezzanines. The code permits lowered ceiling heights in portions of the egress pathway. The committee did not find that the proponent's reasonings justified changing the height requirements for mezzanines.

Individual Consideration Agenda

Public Comment 1:

Proponent : Kevin McOsker, representing Southern Nevada Chapter of ICC (ktm@ClarkCountyNV.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

505.2 Mezzanines.
A *mezzanine* or *mezzanines* in compliance with Section 505.2 shall be considered a portion of the *story* below. Such *mezzanines* shall not contribute to either the *building area* or number of *stories* as regulated by Section 503.1. The area of the *mezzanine* shall be included in determining the *fire area*. The clear height above and below the *mezzanine* floor construction shall be not less than 7 feet 6 inches (2286 mm).

Exception: The clear height above and below the mezzanine shall not be less than 7 feet (2134 mm) where one of the following conditions are met:

1. Where occupant loads are ~~equal to~~ such that only one means of egress is required from the mezzanine.
2. The mezzanine is located in a Group F or ~~less than those shown in Table 1006.2.1.~~ S occupancy.

Commenter's Reason: The original proposal was to limit the 7'-0" ceiling height to smaller mezzanines, which the revised language provides in slightly modified language that is easier to read and understand. The revised language was approved as a floor modification, yet the overall proposal failed to pass through the committee. An opponent pointed out that Group F (factory and industrial uses) and Group S (storage uses) have limited occupant loads and the flexibility of space is a premium for building of these uses. An additional exception was added for an allowance for Group F and S occupancies to allow lower ceiling heights regardless of the occupant load of the mezzanine.

G136-15

G138-15
505.2.1

Proposed Change as Submitted

Proponent : Marshall Klein, representing NMHC

2015 International Building Code

Revise as follows:

505.2.1 Area limitation. The aggregate area of a *mezzanine* or *mezzanines* within a room shall be not greater than one-third of the floor area of that room or space in which they are located. The enclosed portion of a room shall not be included in a determination of the floor area of the room in which the *mezzanine* is located. In determining the allowable *mezzanine* area, the area of the *mezzanine* shall not be included in the floor area of the room.

Where a room contains both a *mezzanine* and an *equipment platform*, the aggregate area of the two raised floor levels shall be not greater than two-thirds of the floor area of that room or space in which they are located.

Exceptions:

1. The aggregate area of *mezzanines* in buildings and structures of Type I or II construction for special industrial occupancies in accordance with Section 503.1.1 shall be not greater than two-thirds of the floor area of the room.
2. The aggregate area of *mezzanines* in buildings and structures of Type I or II construction shall be not greater than one-half of the floor area of the room in buildings and structures equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1 and an *approved emergency voice/alarm communication system* in accordance with Section 907.5.2.2.
3. <u>The aggregate area of a *mezzanine* within a *dwelling unit* that is located in a building equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 shall not be greater than one-half of the floor area of the room, provided:</u>
   - 3.1. <u>The *mezzanine*, other than enclosed closets and bathrooms, shall be open to the room in which such *mezzanine* is located.</u>
   - 3.2. <u>The opening to the room shall be unobstructed except for walls not more than 42 inches (1067 mm) in height, columns and posts, and</u>
   - 3.3. <u>Exceptions to Section 505.2.3 shall not be permitted.</u>

Reason: Currently, Section 505.2.3 permits mezzanines with an occupant load of 10 or less to be entirely enclosed, with an enclosed area up to 1/3 of the area of the room in which the mezzanine is located. This proposal provides an option to forfeit a fully enclosed mezzanine to gain an allowable area up to 1/2 of the room area. From a safety perspective, having the mezzanine open to the space below provides increased awareness for occupants in either area to a hazardous condition that

develops within the space. The proposed slight increase in mezzanine area is reasonable based on the increase in safety associated with not allowing the entire mezzanine to be enclosed.

Cost Impact: Will not increase the cost of construction
Because this proposal simply provides an optional exception, there is no impact on the cost of construction unless someone chooses to apply the exception. Where the exception is applied, the cost of construction will presumably decrease based on eliminating the wall that might have otherwise been installed to separate the mezzanine from the room.

G138-15 : 505.2.1-KLEIN4533

Public Hearing Results

Committee Action: Approved as Modified

Modification:

505.2.1 Area limitation. The aggregate area of a *mezzanine* or *mezzanines* within a room shall be not greater than one-third of the floor area of that room or space in which they are located. The enclosed portion of a room shall not be included in a determination of the floor area of the room in which the *mezzanine* is located. In determining the allowable *mezzanine* area, the area of the *mezzanine* shall not be included in the floor area of the room.

Where a room contains both a *mezzanine* and an *equipment platform*, the aggregate area of the two raised floor levels shall be not greater than two-thirds of the floor area of that room or space in which they are located.

Exceptions:

1. The aggregate area of *mezzanines* in buildings and structures of Type I or II construction for special industrial occupancies in accordance with Section 503.1.1 shall be not greater than two-thirds of the floor area of the room.
2. The aggregate area of *mezzanines* in buildings and structures of Type I or II construction shall be not greater than one-half of the floor area of the room in buildings and structures equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1 and an *approved emergency voice/alarm communication system* in accordance with Section 907.5.2.2.
3. The aggregate area of a *mezzanine* within a *dwelling unit* that is located in a building

equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 shall not be greater than one-half of the floor area of the room, provided:

1. ~~The *mezzanine*, other than~~Except for enclosed closets and bathrooms, the *mezzanine* shall be open to the room in which such *mezzanine* is located.
2. The opening to the room shall be unobstructed except for walls not more than 42 inches (1067 mm) in height, columns and posts, and
3. Exceptions to Section 505.2.3 shall not be permitted.

Committee Reason: The change provides design flexibility for dwelling unit design without impacting safety. It will likely not result in a significant increase in occupant load within any individual dwelling unit. The modification provided better clarity for the first sub-item to this new third exception. The visibility requirement of the mezzanine is maintained.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Disapprove.

Commenter's Reason: The additional square footage is not calculated for allowable area of the building. The proposal adds a 50% increase in allowable area of the mezzanine. Another concern with this proposal is that, as written it can be used for any occupancy.

Public Comment 2:

Proponent : Stephen Skalko, Stephen V. Skalko, P.E. & Associates, LLC, representing Masonry Alliance for Codes and Standards requests Disapprove.

Commenter's Reason: G 138-15 ignores two important fire safety objectives of the building code. They are property protection and protection to the fire service which are achieved by regulating the allowable heights and areas of buildings based on occupancy and construction type. Apparently the General Code Committee focused only on life safety when they recommended this proposal be approved as modified. This is evident by their reasoning statement that the "*change provides design flexibility for dwelling unit design without impacting safety*" and "*will likely not result*

in a significant increase in occupant load within any individual dwelling unit". While both those statements may be true the fact is that allowing a mezzanine to be up to 1/2 of the size of the room to which it opens results in an increase in the overall floor area of the building. Increased floor area also increases the fire load.

The increase in the fire load of the building by the proposal does not include any additional fire safety features to offset the larger fire load. For typical residential buildings, that are of Type III and V construction, the added fire load is not only from potential contents on the larger mezzanines (i.e. mattresses, furniture, clothes, etc.) but also from the additional combustible framing members required to construct the larger mezzanine area. Too, this increased fire load is not due to just one mezzanine in one dwelling unit. The provision would apply to all dwelling units in the building. For example, the number of larger mezzanines that would be permitted could be 36 in a 4-story R-2 occupancy building with 8 units per floor.

Besides increased fire load these larger intermediate mezzanines become more like additional stories in the building due to the larger size. Historically the code has permitted small mezzanines without counting them as a story for building height purposes when their size was limited to 1/3 of the room in which they are located. Thus this code change will allow an increase in the number of stories for residential buildings, again without any added fire safety features to offset the increase in stories.

Exception #2 to Section 505.2.1 of the code already permits mezzanines to be increased up to 1/2 of the room it opens into in buildings. The criteria include providing sprinkler protection and emergency voice/alarm systems, and using Type I or Type II construction for the building. Sprinklers, alarm systems and limiting combustible materials in the building construction to permit larger intermediate floors are further evidence that the code considers property protection and fire service protection in addition to life safety. The provisions in this proposal fall short of these building code objectives.

Recommend DISAPPROVAL of G 138-15.

G138-15

G139-15
505.2.3

Proposed Change as Submitted

Proponent : Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

505.2.3 Openness. A *mezzanine* shall be open and unobstructed to the room in which such *mezzanine* is located except for walls not more than 42 inches (1067 mm) in height, columns and posts.

Exceptions:

1. *Mezzanines* or portions thereof are not required to be open to the room in which the *mezzanines* are located, provided that the *occupant load* of the aggregate area of the enclosed space is not greater than 10.
2. A *mezzanine* having two or more exits or access to exits is not required to be open to the room in which the *mezzanine* is located.
3. *Mezzanines* or portions thereof are not required to be open to the room in which the *mezzanines* are located, provided that the aggregate floor area of the enclosed space is not greater than 10 percent of the *mezzanine* area.
4. In industrial facilities, *mezzanines* used for control equipment are permitted to be glazed on all sides.
5. In occupancies other than Groups H and I, that are no more than two *stories* above *grade plane* and equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, a *mezzanine* having two or more ~~*means of egress*~~ exits or access to exits shall not be required to be open to the room in which the *mezzanine* is located.

Reason: The intent of this proposal is to revise Exception 5 to be consistent with the terminology in Exception 2.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Unenclosed Exit Stairs. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal is a clarification of provisions.

G139-15 : 505.2.3-KULIK3642

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The proposal is a clean up of text within the exceptions, specifically between #5 and #2. It also provides consistency with Chapter 10.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

505.2.3 Openness. A *mezzanine* shall be open and unobstructed to the room in which such *mezzanine* is located except for walls not more than 42 inches (1067 mm) in height, columns and posts.

Exceptions:

1. *Mezzanines* or portions thereof are not required to be open to the room in which the *mezzanines* are located, provided that the *occupant load* of the aggregate area of the enclosed space is not greater than 10.
2. A *mezzanine* having two or more exits or access to exits is not required to be open to the room in which the *mezzanine* is located <u>if at least one exit is provided at the mezzanine level</u>.
3. *Mezzanines* or portions thereof are not required to be open to the room in which the *mezzanines* are located, provided that the aggregate floor area of the enclosed space is not greater than 10 percent of the *mezzanine* area.
4. In industrial facilities, *mezzanines* used for control equipment are permitted to be glazed on all sides.
5. In occupancies other than Groups H and I, that are no more than two *stories* above *grade plane* and equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, a *mezzanine* having two or more exits or access to exits shall not be required to be open to the room in which the *mezzanine* is located.

Commenter's Reason: The ICC Building Code Action Committee is requesting approval as modified by this public comment. The original proposal was simply to revise Exception 5 to refer to "two or more exits or access to exits". This was part of E7-12/13, which was a sweeping proposal which replaced "means of egress" with "exit or exit access".
Currently, when you compare Exception 2 and Exception 5 they conflict with each other. Exception 2 allows for the mezzanine not to be open to the floor below **IF** the mezzanine has two or more exits or access to exits. But, Exception 5 states that the mezzanine need not be open to the floor below **IF**

1. the occupancy is not H or I
2. the building is sprinklered
3. the building is not more than 2 stories
4. the mezzanine has two or more means of egress

When you compare these exceptions, Exception 2 only requires Item 4 to occur from Exception 5.

One of the other components of E7-12/13 was that it also revised Exception 2. Previously, Exception 2 read:

"2. A *mezzanine* having two or more exits or access to exits is not required to be open to the room in which the *mezzanine* is located if at least one of the means of egress provides direct access to an exit from the mezzanine level."

The last portion of Exception 2 was deleted which required that one of the exits or access to an exit provided direct exit. This was the differentiating factor between Exception 2 and Exception 5. The phrase was deleted because it was unclear. What should have happened is that the phrase was clarified. This Public Comment is intended to provide a clarification to Exception 2 so that it will not conflict with Exception 5.

This Public Comment restores the requirement in Exception 2 to provide one exit directly from the mezzanine level. In doing so, Exception 2 and 5 are not conflicting. The language is also clarified to be clear that the "exit" must be available at the mezzanine level.

G139-15

G140-15

506.1.4 (New)

Proposed Change as Submitted

Proponent : Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com)

2015 International Building Code

Add new text as follows:

506.1.4 Allowable area for buildings in disaster prone regions. For buildings more than one story in height above grade plane that are of construction Types IIB, IIIB and VB, the maximum allowable area shall not be greater than the area permitted for non-sprinklered (NS) buildings in accordance with Table 506.2, adjusted for any frontage increase in accordance with 506.3 and where such buildings are any of the following:

1. Assigned to Seismic Design Category C or D in Table 1613.3.5(1).
2. Located in a flood hazard area established in accordance with Section 1612.3.
3. Located in a hurricane-prone region.

Reason: The purpose of this code change is to reduce the total reliance of a community and its firefighters on sprinkler systems in disaster-prone areas of the country where the water supply and/or power may be interrupted, or are likely to have municipal water system operation issues. This proposal is a very conservative proposal to promote community resiliency by limiting the footprint of multi-story buildings that have no vertical fire compartmentation to that which would be allowed for non-sprinklered buildings. The Type IIB, IIIB, and VB buildings may have a fully involved fire in a very short amount of time in the event that water supplies for sprinklers are reduced or impaired after a natural catastrophe. Such water supply interruptions are not uncommon after natural disasters. For non-rated multi-story buildings, meaning buildings that have no fire resistance rated floors, fire may spread freely and quickly from story to story. Limiting the per-floor area of Type IIB, IIB, and VB buildings is intended to result in protecting buildings in areas at high risk for natural catastrophes the most essential combustible buildings and facilities with both sprinkler protection and increased fire resistance rated vertical compartmentation. This proposal may be fairly considered to be the proverbial "belt-and suspenders" approach. If one were to fail, the other protection method would provide an added layer of protection that would serve to prevent a life safety disaster.
The 2012 IBC Sections 504.2 and 506.3 had specific allowable increases that were permitted when automatic sprinkler systems were installed. Those allowances have been incorporated into Tables 504.3 and Table 504.4 as S1 and SM. Such allowable area increases permitted by the code assumed that power and water supply will be readily available and reliable for the successful operation of fire suppression systems. This is especially true for combustible construction such as Types IIB, IIIB and VB, and also for non-combustible construction without any vertical compartmentation. For some parts of the country where buildings impacted by a natural disaster may remain without reliable water and or power for a considerable period of time, that general assumption may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

Responding to the challenge of mitigating damage from natural disasters, California has more stringent requirements on buildings they have designated as "high-risk ". But more than 15% of the U.S. population lives in potential major earthquake areas.

41 states and territories have moderate to high risk. There is a real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also uncontrollable building-to-building fire spread. In October 17, 1989, a 7.1 earthquake in Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. In January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The main cause of fire was largely due to natural gas leaks. Additionally, the water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes. 85 spread to adjacent buildings and 10 approached or reached conflagration status. 1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone. Similar data of increased fire incidents are available in hurricane and flood prone regions. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself.

This change is limited in its application to multi-story buildings without any vertical fire compartmentation in the higher risk, disaster prone regions defined by the code. There may be some types of combustible materials of these buildings that should appropriately be exempted from this area limitation.

Cost Impact: Will increase the cost of construction
This change reduces the allowable areas of essential buildings to the allowable areas specified for non-sprinklered buildings, and the increased cost will be consistent with the costs for non sprinklered buildings. The increased costs are only proposed for limited geographic areas.

G140-15 : 506.1.4 (New)-LOVELL5295

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Items G140-15, G152-15 and G171-15 were considered together. The committee disapproved all three. They were unconvinced by the proponents reason statement that these changes are the way to address buildings in higher rish areas. The committee felt that the imposing this requirement on Seismic zones C and D - but not E and F was not logical.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

506.1.4 Allowable area for buildings in disaster prone regions.
For buildings more than one story in height above grade plane that are of construction Types IIB, IIIB and VB, the maximum allowable area shall not be

greater than the area permitted for non-sprinklered (NS) buildings in accordance with Table 506.2, adjusted for any frontage increase in accordance with 506.3 and where such buildings are any of the following:

1. Assigned to Seismic Design Category ~~C~~ D, E or ~~D~~ F in Table 1613.3.5(1).
2. Located in a flood hazard area established in accordance with Section 1612.3.
3. Located in a hurricane-prone region.

Commenter's Reason: The committee suggested that Seismis zones E and F should be included in the proposal. We have added these zones and removed Seismic zone C.

Public Comment 2:

Proponent : Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

506.1.4 Allowable area for buildings in disaster prone regions. ~~For~~ The maximum allowable area for buildings assigned to Risk Category IV that are more than one story in height above grade plane ~~that~~ and are of construction Types IIB, IIIB and VB, ~~the maximum allowable area~~ shall not be greater than the area permitted for non-sprinklered ~~(NS)~~ buildings in accordance with Table 506.2, adjusted for any frontage increase in accordance with 506.3 , and where such buildings are any of the following:

1. Assigned to Seismic Design Category ~~C~~ D or ~~D~~ F in ~~Table 1613.3.5(1)~~ accordance with Section 1613.3.5.
2. Located in a *special flood hazard area* established in accordance with Section 1612.3.
3. Located in a ~~hurricane-prone~~*windborne-debris region* based on Figure 1609.3(2).

Exception: Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 that are provided with a secondary water supply in accordance with Section 403.3.3, and where the fire pumps are protected against interruption of service in accordance with Section 913.

Commenter's Reason: The area limitation is intended to apply ONLY to buildings that are all of the following:

- Classified as the highest risk.
- Located in the highest risk, disaster-prone regions for floods, hurricanes, and seismic activity.
- Types IIB, IIIB and VB construction.

It excludes sprinklered buildings that have emergency backup systems for water and power in those regions.

The purpose of this code change is to reduce the total reliance of a community and its firefighters on sprinkler systems in disaster-prone areas of the country where the water supply and/or power may be interrupted, or are likely to have municipal water

system operation issues. This proposal is a very conservative proposal to promote community resiliency by limiting the footprint of multi-story buildings that have no vertical fire compartmentation to that which would normally be allowed for non-sprinklered buildings. The Type IIB, IIIB and VB buildings may have a fully involved fire in a very short amount of tim in the event that water supplies for sprinklers are reduced or impaired after a natural catastrophe. Such water supply interruptions are not uncommon after natural disasters. For non-rated multi-story buildings, meaning buildings that have no fire resistance rated floors, fire may spread freely and quickly from story to story. Limiting the per-floor area of Type IIB, IIIB, and VB buildings is intended to result in protecting buildings in areas at high risk for natural catastrophes, the most essential combustible buildings, and facilities with both sprinkler protection and increased fire resistance rated vertical compartmentation. This proposal may be fairly considered to be the proverbial "belt and suspenders" approach. If one were to fail, the other protection method would provide an added layer of protection that would serve to prevent a life safety disaster.

The 2012 IBC Sections 504.2 and 506.3 had specific allowable increases that were permitted when automatic sprinkler systems were installed. Those allowances have been incorporated into Tables 504.3 and 504.4 as S1 and SM. Such allowable area increases permitted by the code assumed that power and water supply will be readily available and reliable for the successful operation of fire suppression systems. This is especially true for combustible construction such as Types IIB, IIIB and VB, and also for non-combustible construction without any vertical compartmentation. For some parts of the country where buildings impacted by a natural disaster may remain without reliable water and or power for a considerable period of time, that general assumption may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

Responding to the challenge of mitigating damage from natural disasters, California has more stringent requirements on buildings they have designated as "high-risk". But more than 15% of the U.S. popluation lives in potential major earthquake areas; 41 states and territories have moderate to high risk. There is a real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also uncontrollable building-to-building fire spread. On October 17, 1989, a 7.1 earthquake in the Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. On January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The main cause of fire was largely due to natural gas leaks. Additionally, the water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes; 85 spread to adjacent buildings and 10 approached or reached conflagration status. 1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone. Similar data of increased fire incidents are available in hurricane and flood prone regions. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself.

This change is limited in its application to multi-story buildings without any vertical fire compartmentation in the higher risk, disaster-prone regions defined by the code. There may be some types of combustible materials of these buildings that should appropriately be exempted from this area limitation.

Cost Impact: Will increase the cost of construction

This code change proposal will increase the cost of construction for some building types.

G140-15

G142-15

506.3, 506.3.1

Proposed Change as Submitted

Proponent : William Hall, representing Portland Cement Association (jhall@cement.org)

2015 International Building Code

Revise as follows:

506.3 Frontage increase. Every building shall adjoin or have access to a public way to receive an area factor increase based on frontage. ~~Area~~ Buildings four stories or more in height, as measured from the grade plane, of Type III and V construction, using combustible framing material shall also not have less than 25 percent of its perimenter on a public way or open space. Such open space shall be either on the same lot or dedicated for public use and shall be accessed from a street or approved fire lane. The area factor increase shall be determined in accordance with Sections 506.3.1 through 506.3.3.

506.3.1 Minimum percentage of perimeter. To qualify for an area factor increase based on frontage, a building shall have not less than 25 percent of its perimeter on a public way or open space. Such open space shall be either on the same lot or dedicated for public use and shall be accessed from a street or approved fire lane. Open space for buildings four or more stories in height as measured from the grade plane, of Type III and V construction, using combustible framing material shall have a grade of not more than 10 percent and be provided with a *fire apparatus access road i*n accordance with Section 503 of the *International Fire Code* for full length of open space. Open space that is not used for open perimeter area increases are not required to provide fire apparatus access roads or 10 percent grade.

Reason: Fires during construction have been on the increase across the U.S and other countries which utilize combustible construction in multi-story buildings. The intensity of these fires put adjacent buildings, businesses and residents at risk until the project is complete, which can take up to 2 years to complete or more if the project stalls. These fires are caused by a multitude of reasons including but not limited to arson, smoking, cooking, heating and hot work. Fire service, even in large well equipped jurisdictions cannot effectively stop these conflagrations and most of these incidents end in total loss of the building under construction as well as damaged or destroyed adjacent buildings. Many times adjacent buildings are at risk due to the extreme heat, flying embers and wind speeds, as seen in the recent Los Angeles fire where paper, laying on a desk in an adjacent high rise structure caught fire and 6 six floors of the high rise were on fire. Currently the building code allows a 75% increase in the base tabular area when the structure has an on open perimeter of 20-30 feet, in more than 25 percent of total building perimeter. Currently the open space is not required to be open or traversable by fire apparatus vehicles. This code proposal does two things: First requires that all Type III and V buildings, 4 or more stories, be required to provde 25% open space or public space and secondly would require that the open space, used for an increase in allowable area, be usable by the fire service and apparatus, in Type III and V buildings 4 or more stories in height.

Fire serviice must be able to access the structure to effectively battle the fire. If a building is allowed to be built bigger by providing open space, the space should serve as access for fire fighting.

Cost Impact: Will increase the cost of construction
This change will increase the cost of construction for Type III and V construction, 4 stories and over, using combustible construction.

G142-15 : 506.3-HALL4560

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal is another one addressing fires during construction. This is already adequately address via the authorities granted in Chapter 33 and the IFC. There is nothing which assures the space required by this proposal would actually stay open and functional. Construction crews will use such spaces for staging of materials and similar activities.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Approve as Submitted.

Commenter's Reason: To reply to the committee statement, this is not another proposal to address construction fires. This proposal is in response to fire departments not being able to have access to fight fire. Many designers use the 25% open perimeter to get increases in allowable area. This proposal simply requires an open space for staging and emergency operations where the building is combustible and 4 stories or more.
Access continues to be an issue as read in this quote from fire services at the Ponte Verda, FL condominium fire:

"We had a heavy fire load upon arrival, so we were essentially playing catch up as soon as we got here. The location of the building, while one side gives us good access, the opposite side of the structure, essentially, there's very little access," Robshaw said. "The other building is very close to it, so it's difficult for us to get back there. That is where the main body of the fire was located. So really one of our primary objectives, initially, was accessing that area and then preventing the adjacent structure from becoming involved."

G142-15

G143-15

202 (New), 506.3.1

Proposed Change as Submitted

Proponent : Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2015 International Building Code

Add new text as follows:

SECTION 202 DEFINITIONS

FIRE APPARATUS ACCESS ROAD A road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term inclusive of all other terms such as fire lane, public street, private street, parking lot lane and access roadway.

Revise as follows:

506.3.1 Minimum percentage of perimeter. To qualify for an area factor increase based on frontage, a building shall have not less than 25 percent of its perimeter fronting on a public way or ~~open space~~ yard. Such open space shall be either on the same lot or dedicated for public use and shall be accessed from a street or approved *fire ~~lane~~ apparatus access road*.

Reason: Section 202 of the International Fire Code more clearly describes what the I codes intend when the term fire lane is used. The term makes it clear that it's purpose is for the movement and staging of fire apparatus and includes private streets, parking lo lanes and access roadways. This editorial code change adds consistency and clarity.
The term fire lane is too restrictive since it is evident from definition in IBC Section 202 and states that a fire lane is "A road or other passageway developed to allow the passage of fire apparatus. A fire lane is not necessarily intended for vehicular traffic other than fire apparatus". A fire apparatus access road can be used by vehicles other than fire apparatus. Additionally open space is not a defined term however yard is and yard is required to be clear and open to the sky which is what is intended for the open space.

The term fire lane is used in three instances in the IBC (Section 202, 506.3.1 and 705.8.1 Except 1 and 2) and since it is a a permissible element within the fire aparatus roadway definition the proposed definition will not add conflicts with other parts of the code.

Cost Impact: Will not increase the cost of construction
This code change is editorial. A fire access roadway will be required by the fire code to access exterior portions of a building within 200 ft of the response point.

G143-15 : 506.3.1-FATTAH4661

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The language with respect to yards versus courts versus open space, in the proposal is unclear. This is a fire code issue and shouldn't be brought into the IBC. The definition would imply that a building would be required to address a fire access route all the way back to a fire stattion. A private land owner can not be expected to control what is going on in the public rights of way.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests Approve as Submitted.

Commenter's Reason: This public comment is submitted after consideration of the feedback provided during the committee action hearings. This is an editorial code change that harmonizes definitions between the IFC and IBC. The IBC term fire lane is a subset of a broader definition in the IFC. There is no intent to regulate fire access from fire stations to the site nor is it the intent of the code change to change the fire code definition.
Insofar as the proposed change to substitute the term yard, a defined term, in lieu of open space, open space is too broad and can be a cliff, body of water or other inaccessible areas. While a cliff or open body of water provides fire separation, access for fire fighting may not be available.

The term fire lane does not account for communities that include private streets that are not maintained by the local jurisdiction but that are designed and maintained in like fashion to public ways. Many yards are accessed by drive lanes along sides of a building with perpendicular parking that do not comply with the fire code defined term fire lane.

- IFC Section 202 FIRE LANE. A road or other passageway developed to allow the passage of fire apparatus. **A fire lane is not necessarily intended for vehicular traffic other than fire apparatus.**

The Building Code and Fire Code are coordinated members of the I code family and are designed to work together. there are numerous instances where common definitions are used in both codes or where technical requirements in one cod rely on technical requirements in another code both by reference or transcription. The allowance for frontage increase relies on open space to provide fire separation as a trade off for an allowable area increase. These buildings may or may not be protected with a fire sprinkler system. The IBC commentary clarifies that the code intends the yard to provide both access for the fire department and open space. Unlike fire separation distance the yard can be measured to the face of an adjoining building or to a building on the other side of a public way such as a narrow street or alley.

The public right of way allows unimpeded access to anyone and is regulated by law enforcement through the motor vehicle code. So the portions of the IFC definition that alarmed the committee do not require the property owner to control access since the governing jurisdiction through it's police powers ensures free access. the portion of the route on portions other than the right of way are under the control of the property owner and can be enforced by the Fire Code Official as a part of regular maintenance inspections required/authorized by the fire code.

The terms 'public way' and 'yard' are defined terms and they should appear in italic font when used inSection 506.3.1.

The committee stated that the IBC commentary is not mandatory code language which is precisely the reason that the proposed code change is being made to add

consistency with the interpretations published by ICC.

G143-15

G144-15

506.3.3, 506.3.3.1 (New), 506.3.3.2 (New)

Proposed Change as Submitted

Proponent : William Hall, representing Portland Cement Association (jhall@cement.org)

2015 International Building Code

Revise as follows:

506.3.3 Amount of increase. The area factor increase based on frontage shall be determined in accordance with ~~Equation 5-5:~~
Sections 506.3.3.1 and 506.3.3.2.

~~I_f=[F/P- 0.25]W/30~~ ~~**(Equation 5-5)**~~
~~where:~~

~~I_f = Area factor increase due to frontage.~~
~~F = Building perimeter that fronts on a *public way* or open space having minimum distance of 20 feet (6096 mm).~~
~~P = Perimeter of entire building (feet).~~
~~W = Width of *public way* or open space (feet) in accordance with Section 506.3.2.~~

506.3.3.1 Type II contruction The area factor increase based on frontage shall be determined in accordance with equation 5.5.

I_f=[F/P- 0.25]W/30 (Equation 5-5)

where:

I_f = Area factor increase due to frontage.
F = Building perimeter that fronts on a public way or open space having minimum distance of 20 feet (6096 mm).
P = Perimeter of entire building (feet).
W = Width of public way or open space (feet) in accordance with Section 506.3.2.

Add new text as follows:

506.3.3.2 Type III, IV and V Construction. The area factor increase based on frontage shall be determined in accordance with equation 5.6.

I_f=[F/P- 0.25]W/30-H **(Equation 5-6**

where:

I_f = Area factor due to frontage

F = Building perimeter that fronts on a *public way* or open space having minimum c of 20 feet (6096 mm)

P = Perimeter of entire building (feet).

W = Width of *public way* or open space (feet) in accordance with Section 506.3.2.

H = 0 if 1 story
25% if 2 story
50% if 3 story
75% if 4 or more stories

Where increase factor is negative, 0 shall be used.

Reason: Fires during construction have been on the increase across the U.S and other countries which utilize combustible construction in multi-story buildings. The intensity of these fires put adjacent buildings, businesses and residents at risk until the project is complete, which can take up to 2 years to complete or more if the project stalls. These fires are caused by a multitude of reasons including but not limited to arson, smoking, cooking, heating and hot work. Fire service, even in large well equipped jurisdictions cannot effectively stop these conflagrations and most of these incidents end in total loss of the building under construction as well as damaged or destroyed adjacent buildings. Many times adjacent buildings are at risk due to the extreme heat, flying embers and wind speeds, as seen in the recent Los Angeles fire where paper, laying on a desk in an adjacent high rise structure caught fire and 6 six floors of the high rise were on fire. Currently the building code allows a 75% increase in the base tabular area when the structure has an on open perimeter of 20-30 feet, in more than 25 percent of total building perimeter.
This amount of distance does not correctly relate to safe distances needed to mitigate fire spread by thermal radiation. Based on the research report titled "External fire spread: building separation and boundary distances" published by the Fire Research Station, separation distances of 30 feet during construction are not adequate in limiting fire exposure in adjacent buildings and obviously do not provide safe distances for firefighting operations.
To paraphrase the report, the minimum intensity for fire ignition is 0.3 cal cm-2s-1. To maintain levels at or below this rate of thermal radiation, fire separation distances are based on the height and width of the burning building, the number of windows and a presumed heat release ranging from 2 to 4 cal cm-2s-1 depending on fire load. Office and residential usually are calculated at 2 cal cm-2s-1 but in the construction phase, a total burnout is expected with full exposure so 4 cal cm-2s-1 is the appropriate rate and is very conservative. Thermal radiation rates could be much higher depending on wind and openness of the structure. Based on this information, fire separation distances for a small building 100 wide by 30 feet tall requires 52 feet of separation to keep adjacent structures at or below the minimum intensity for ignition. A large building, 7 stories, such as the one in LA, would have required a minimum of 141 feet separation distance.

This proposal limits the open perimeter area increase on multi-story combustible buildings based on a separation distance of 30 feet by introducing a new height variable into the equation.

Cost Impact: Will increase the cost of construction
While not directly increasing the cost of construction, this proposal will limit the allowable area increases in some buildings using combustible construction for multi-story construction. The cost impact is difficult to determine, based on means and methods used by the designer.

G144-15 : 506.3.3-HALL4939

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Consistent with its action on G142-15, the committee disproved this item. Again this is trying to address risks during construction and such should be addressed in the IBC.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Approve as Submitted.

Commenter's Reason: The proposal addresses allowable area increases. Building areas are allowed to increase based on a separation distance beginning at 20 feet and continued to 30 feet for full increase. This distance is not logical for combustible construction types. Thermal radiation from a fully involved 4 story building fire will easily ignite other combustibles at a distance of 30 feet. This was seen at the LA fire when multiple stories in a high rise building adjacent to the fire, were hot enough to ignite papers on the desk after windows broke from the intense heat. The image below is a structure located over 100 feet away from the fire.

G144-15

G147-15
508.2.3

Proposed Change as Submitted

Proponent : Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org)

2015 International Building Code

Revise as follows:

508.2.3 Allowable building area. The allowable area of the building shall be based on the applicable provisions of Section 506 for the main occupancy of the building. Aggregate accessory occupancies shall not occupy more than 10 percent of the floor area of the story in which they are located and shall not exceed the tabular values for nonsprinklered buildings in Table 506.2 for each such accessory occupancy.

Exception: Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.2, aggregate accessory occupancies shall be not more than 50 per cent of the floor area of the floor of the story in which they are located where such accessary occupancies are permitted by NFPA 13R to be protected by quick-response or residential sprinklers. The allowable building area for stories with such accessory occupancies shall be based on the allowable building area for the main occupancy in accordance with Section 503.1.

Reason: The application of the 10% of the floor area criteria under IBC Section 508.2.3 to such types of residential occupancies covered under NFPA 13R creates major design and cost problems with 2 hour separations for accessary occupancies in such residential buildings. 2013 NFPA 13R Sections 6.2.2, 6.4.7 & 7.2 have detailed sprinkler and compartment requirements incorporated into the NFPA 13R standard to address accessary spaces outside the dwelling units when considered part of the residential (predominant) occupancy. This proposed code change would better correlate with the requirements in NFPA 13R for area/spaces outside the dwelling units that have fire loads similar to residential fire loads and/or are compartmented into 500 square feet or less in area.

Cost Impact: Will not increase the cost of construction
Reduces construction costs by reducing fire barriers between floors and adjacent occupancies.

G147-15 : 508.2.3-HUGO4650

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee found the increase from 10% to 50% to be excessive and has the net effect of defeating the mixed occupancy provisions of the code. You could end up with assembly areas, storage areas, laundery facilities being half a building without proper sprinkler protection. If it would to be revised for public comment, it should include more specificity regarding the occupancies allowed under this exception and make it clear they are ancillary to the residential use.

Individual Consideration Agenda

Public Comment 1:

Proponent : Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

508.2.3 Allowable building area. The allowable area of the building shall be based on the applicable provisions of Section 506 for the main occupancy of the building. Aggregate accessory occupancies shall not occupy more than 10 percent of the floor area of the story in which they are located and shall not exceed the tabular values for nonsprinklered buildings in Table 506.2 for each such accessory occupancy.

> **Exception:** ~~Where~~ In Groups R and I-1 Condition 1 occupancies, where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 and 903.3.1.2, and does not exceed 60 feet and four stories in height above grade plane, aggregate accessory occupancies shall be not more than ~~50~~ 25 per cent of the floor area of the floor of the story in which they are located where ~~such~~ accessary occupancies are ~~permitted by NFPA 13R to be~~ protected by quick-response or residential sprinklers or where classified as light hazard. The allowable building area for stories with such accessory occupancies shall be based on the allowable building area for the main occupancy in accordance with Section 503.1.

Commenter's Reason: NFPA 13R was used in the original proposal, but it was commented on in Memphis that NFPA 13 should also be included. However, this proposal is meant for and limited to the height and story limits of NFPA 13R, which is used to protect residential occupancies up to four stories and sixty feet in height above grade plane. It was also commented that this proposal should be limited to the specific occupancies. NFPA 13R is limited to R occupancies, but the IBC extends the use of NFPA 13R to I-1 Condition 1 occupancies.

The residential occupancies protected by the NFPA 13R standard are typically R-1 (hotels and motels) and R-2 (apartments), but can also be used for R-3 (boarding and congregate), R-4 (custodial care) and I-1(board and care) occupancies. The scope of NFPA 13R specifically states, "...protection against fire hazards in residential occupancies..." This standard has criteria for the residential spaces as well as the other occupied areas of the building that are ancillary to residential users of the building. All residential occupancies have accessory occupancies, such as laundry facilities, gift shops, assembly spaces, exercise rooms, and other related occupancies. The scope, as mentioned above, also covers the ancillary occupancies of the residential occupancy with appropriate protection for the anticipated hazard.

There are four important sections in the 2013 edition of NFPA 13R that address accessory occupancies. They are Section 1.1 (A.1.1) 6.2.2, 6.4.7, and 7.2. It is critical to first understand the scope of NFPA 13R in Section 1.1 and the in-depth explanation of the scope in the Annex of Section 1.1. Next, the first technical section to note is Section 6.4.7. This section specifically names several areas of the building that are considered residential accessory areas. These areas are: lobbies, foyers,

corridors, halls, lounges, areas classified as ordinary hazard, garages connected to a single dwelling unit and other areas that have fire loading similar to the residential occupancy. While areas outside dwelling units are required to be protected with quick response sprinklers, NFPA 13R permits these specific areas to be protected by residential sprinklers, which are also a type of fast response sprinkler. Lobbies in hotels and motels with the fire hazards associated with cooking or warming of food cannot be protected by residential sprinklers unless NFPA 13 design and discharge criteria is used. However, NFPA 13R has an exception for residential sprinkler uses in ordinary hazard areas when a list of five conditions are met in Section 6.2.2.4, they are:

1. Up to 500-square foot compartments with 30-minute fire-rated construction.
2. Sprinkler spacing at 130-square foot per sprinkler.
3. Each opening has at least an 8-inch lintel.
4. The total area of openings in the compartment cannot exceed 50 square feet, excluding garage doors.
5. Ordinary hazard discharge densities per NFPA 13. Note, this condition does not trigger NFPA 13 to be installed throughout.

As mentioned above, NFPA 13R (in Section 7.2) requires the areas outside the dwelling units, such as accessory areas, to be sprinklered with quick response sprinklers using the design area and discharge densities from NFPA 13. However, in small compartmented areas, NFPA 13R permits the quick response sprinkler rules to remain within NFPA 13R. Below is a list for use when quick response sprinklers within the NFPA 13R standard are used:

1. The design area is the actual number of sprinklers or up to four, whichever is greater.
2. Up to 500-square foot compartments with 30-minute fire-rated construction.
3. Sprinkler spacing is per the listing, or at 130-square foot per sprinkler for ordinary hazard, or up to 225-square foot for light hazard.
4. Each opening has at least an 8 inch lintel.
5. The total area of openings in the compartment cannot exceed 50 square feet, excluding garage doors.
6. Ordinary hazard discharge densities need to be per NFPA 13. Note, this condition does not trigger NFPA 13 to be installed throughout.

The International Building Code (IBC) recognizes that accessory occupancies exist and provides designers liberal options to arrange them within a floor of a story. Many primary occupancies have accessory occupancies, for example, a mercantile building may have a coffee bar and a business office may have a commercial shipper located within the main occupancy. The IBC would permit these small accessory uses in Section 508.2. Residential occupancies, protected by NFPA 13R as explained above, have accessory occupancies also, such as coffee bars, business areas, small laundry facilities and gift shops that serve the occupants of the structure. Section 508.2.3 permits accessory occupancies to occupy 10 percent of the floor area of each story. This allowance has been in the IBC since the 2000 edition. Furthermore, the IBC has never required the accessory occupancy to be separated from the main occupancy by fire barriers, when under 10 percent, with a few exceptions, one of which is specific to R-1, R-2, R-3 and I-1 occupancies. For example, a 4-story mercantile building with 12,000 square feet on each floor would be allowed up to 1,200 square feet of accessory occupancies on each floor with no fire separation. A four story hotel or apartment building with the same 12,000 square feet on each floor would also be allowed up to 1,200 square feet of accessory occupancies. However, the hotel and apartment (R-1,R-2, R-3 and I-1) accessory occupancies would have a mandatory fire rated separation required in IBC Section 508.2.4 Exception 2, which states, "dwelling and sleeping units shall be separated from accessory occupancies that are contiguous to them." The user is then sent to Section 420, which refers to Section 708 for fire partitions (walls) and Section 711 for horizontal assemblies (floor/ceiling). The fire resistance rating of dwelling and sleeping unit walls or ceilings will be either thirty minutes or one hour, but in no case, even with sprinklers, is the fire-rating less than thirty minutes. When the accessory occupancies are contiguous with the dwelling and sleeping units, the thirty minute or

one hour fire partition separations would apply. Even if the accessory occupancies are not considered contiguous, R and I occupancies are highly compartmented by nature and the requirements for the type of construction add to the accessory occupancy separation which means the majority of the walls, floors and ceilings have a fire rating. While Section 508.2.4 appears to have a broad brush of no separation of accessory occupancies, it goes beyond for the noted residential (R-1,R-2, R-3 and I-1) occupancies.

The IBC permits unseparated accessory occupancies, unsprinklered, up to 10 percent of the floor area, but holds the same limitation for a fully sprinklered (NFPA 13 or NFPA 13R) residential (R-1,R-2, R-3 and I-1) occupancy but mandates (at least) thirty minute fire partitions for the same accessory occupancy. If an unsprinklered mercantile occupancy can have a coffee shop with no separation, why would the same coffee shop in a sprinklered residential occupancy be required to have a fire partition in the surrounding walls and ceiling?If the argument is held to just NFPA 13R, which does not have area increases in the IBC, then the unsprinklered building actually has less of a burden. This philosophy is flawed and unjust. An increase to the percentage of accessory occupancies protected by NFPA 13R (and naturally NFPA 13) for residential (R-1,R-2, R-3 and I-1) occupancies is warranted. The committee in Memphis commented that 50 percent was too much. This public comment cuts the original proposal in half, to 25 percent. If an unsprinklered accessory area can have 10 percent without a fire barrier, then surely a fully sprinklered R or I-1 occupancy can have 15 percent more? This concept is not completly unheard of, as another code, used internationally also, NFPA 5000, Section 6.2.1.5 permits up to 25 percent.

NFPA 13R has developed the design criteria for protection of accessory occupancies to complement and correlate to the IBC accessory occupancies over the past several cycles. Accessory occupancies in the IBC are treated as areas outside the dwelling units in NFPA 13R. Many accessory areas are light hazard with fire loading similar to light hazard in NFPA 13 and are referred to NFPA 13 by NFPA 13R for design discharge (minimum of 0.1 gpm/sq.ft. but up to 0.2 gpm/sq.ft. or higher for ordinary hazard occupancies) and design area criteria. Where residential sprinklers are used in lieu of quick response sprinklers in an accessory area, NFPA 13R has increased the design density and limits the area in size to 500 square feet with thirty minute fire rated walls, or in IBC terms, thirty minute fire partitions. In short, the accessory areas in the IBC for R occupancies have the same flow and spacing as they would under NFPA 13.

It is clear that R occupancies and their accessory occupancies have more separation requirements and a higher sprinkler density than an unsprinklered accessory occupancy. Many R-1 and R-2 occupancies are predominately residential as explained in NFPA 13R Section A.1.1. Hotel and apartment accessory occupancies have residential atmospheres with similar fire loading as the dwelling units. If the dwelling units are not limited in area and have a lower sprinkler density in NFPA 13R, why would the accessory occupancy with a higher sprinkler density and closer sprinkler spacing be limited to 10 percent per floor? Would it be acceptable if the first floor was 50 percent of the floor area with a lounge, gift shop, lobby and exercise area separated by (at least) thirty minute walls and ceilings with NFPA 13 criteria? If not, these areas over 10 percent are required by the IBC to be looked at further and either treated as unseparated occupancies or separated occupancies with two hour fire barriers. Separating a fully sprinklered building that has the same unseparated accessory area limits as an unsprinklered building that is already highly compartmented with two hour fire barriers is certainly not justified. Installing a two hour fire barrier to separate residential style fire loading is more restrictive than the one hour fire barrier for stairs or horizontal exits in the means of egress path. The IBC needs to follow up with changes to permit increased accessory sizes to match the needs of the architectural industry and building owners' wants. The fire reports and statistics do not show any negative aspects of allowing increased nonseparated accessory areas for residential buildings.

G148-15
508.3.1

Proposed Change as Submitted

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

Revise as follows:

508.3.1 Occupancy classification. Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space. In addition, the most restrictive provisions of Chapter 9 that apply to the nonseparated occupancies shall apply to the total nonseparated occupancy area. Where nonseparated occupancies occur in a *high-rise building*, the most restrictive requirements of Section 403 that apply to the nonseparated occupancies shall apply throughout the *high-rise building*. Where one of the non-separated occupancies is Group I-2, Condition 2, the most restrictive requirements of Sections 407, 509, 712, and Chapter 10 shall apply.

Reason: This proposal modifies the requirements for non-separated mixed uses. In a hospital buildings, it is important to maintain some fire protection features throughout the building. Many of these restrictions directly support the defend-in-place concept that hospitals rely on. Specifically included are incidental use areas, protected vertical openings, and hospital-specific egress provisions. As written, the current code would allow an unprotected vertical opening to be located in the non-separated business portion of a hospital building. Arguably you could use the definition of a smoke compartment to challenge this idea, but that argument is very subtle and highlights an inherent conflict ion the code. Section 407 is specific to I-2 occupancies, not to building that contain I-2 occupancies. Yet section 407 contains provisions for corridor construction, smoke compartmentation and hospital specific egress provisions that should be maintained to support the defend in place concept.

By clearly stating in this section that there are some concepts in a hospital building that need to be treated differently, we can provide clear direction to designers and enforcers. This code change is needed to be consistent with the requirements of Medicaid and Medicare (CMS.)

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will increase the cost of construction
While this is an increase in construction based on only IBC requirements, however,

this is a requirement from federal CMS in hospitals; therefore, this is not an increase in actual construction cost.

G148-15 : 508.3.1-WILLIAMS4243

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal is unclear as to the extent of application in a mixed occupancy building. If the Group I-2 occupancy is only a minor portion of the building, it could impose significant requirements onto the balance of the buildling. An attempt to modify the language for clarity wasn't found to be clarifying. The text doesn't say whether the language 'shall apply' is meant to apply throughout the building or throughout a smaller area.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : John Williams, CBO, representing Adhoc Healthcare Committee (AHC@iccsafe.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

508.3.1 Occupancy classification. Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space. In addition, the most restrictive provisions of Chapter 9 that apply to the nonseparated occupancies shall apply to the total nonseparated occupancy area. ~~Where nonseparated occupancies occur in a *high-rise building*, the most restrictive requirements of Section 403 that apply to the nonseparated occupancies shall apply throughout the *high-rise building*. Where one of the non-separated occupancies is Group I-2, Condition 2, the most restrictive requirements of Sections 407, 509, 712, and Chapter 10 shall apply.~~

508.3.1.1 High-rise buildings. Where nonseparated occupancies occur in a *high-rise building*, the most restrictive requirements of Section 403 that apply to the nonseparated occupancies shall apply throughout the *high-rise building*.

508.3.1.2 Group I-2, Condition 2 occupancies Where one of the non-separated occupancies is Group I-2, Condition 2, the most restrictive requirements of Sections 407, 509 and 712 shall apply throughout the fire area containing the Group I-2 occupancy. The most restrictive requirements of Chapter 10 shall apply to the path of egress from the Group I-2 Condition 2 occupancy up to and including the exit discharge.

Commenter's Reason: The committee disapproved this change because the scope

was unclear. There were concerns that more restrictive requirements for I-2 would apply throughout the building. This public comment addresses that problem. The revised language clearly states the more restrictive of 407, 509 and 712 apply to the fire area that contains the Group I-2 occupancies. That way incidental use areas, vertical openings, and corridors in other fire areas do not have to comply with the hospital specific requirements. Where and if those fire areas exist is up to the designer or other portions of this code. This gives designers and facilities some flexibility when designing large building where the hospital is only a small portion of the building. The more restrictive requirement of Chapter 10 apply from the Group I-2 occupancy all the way to (and including) the exit discharge. Mean of Egress concepts such as sizing corridor width appropriate for stretcher and bed traffic should apply from the I-2 to the exit discharge because that is where it is needed. The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: Adhoc Healthcare.

The acutal changes between the 2015 IBC and this proposal are limited to the underlined text below. The balance of the change is establishing 2 new subsections using existing text currently in Section 508.3.1.

> **508.3.1 Occupancy classification.** Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space. In addition, the most restrictive provisions of Chapter 9 that apply to the nonseparated occupancies shall apply to the total nonseparated occupancy area.
>
> **508.3.1.1 High-rise buildings.** Where nonseparated occupancies occur in a high-rise building, the most restrictive requirements of Section 403 that apply to the nonseparated occupancies shall apply throughout the high-rise building.
>
> **508.3.1.2 Group I-2 Condition 2 occupancies.** Where one of the non-separated occupancies is Group I-2, Condition 2, the most restrictive requirements of Sections 407, 509~~,~~ and 712~~, and~~ shall apply throughout the fire area containing the Group I-2 occupancy. The most restrictive requirements of Chapter 10 shall apply to the path of egress from the Group I-2 Condition 2 occupancy up to and including the exit discharge.

G148-15

G152-15

508.4.4.2 (New)

Proposed Change as Submitted

Proponent : Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com)

2015 International Building Code

Add new text as follows:

508.4.4.2 Fire-resistance ratings. The *fire-resistance ratings* in Table 508.4 shall not be permitted to be reduced to less than 2 hours in buildings of construction Types IIB, IIIB and VB in Risk Categories III and IV identified in Table 1604.5 where such buildings are any of the following:

1. Assigned to Seismic Design Category C or D in Table 1613.3.5(1).
2. Located in a flood hazard area established in accordance with Section 1612.3.
3. Located in a hurricane-prone region.

Reason: As hazard events, both naturally-occurring and man-made, are increasing in number and severity in the United States and around the world, the resilience of communities and the individual buildings within those communities is becoming of vital importance.
A National Institute of Building Sciences Publication (May, 2014) entitled "Moving Forward: Findings and Recommendations", states that "while a long history of building codes has laid the foundation for addressing the impacts of natural and man-made hazards, changes in the frequency and severity of events have brought new challenges — challenges requiring the engagement and support of policymakers. While building codes serve as the minimum requirements for life-safety in the building stock, basic life-safety protections do not fully address building performance requirements to achieve resilience."

Mitigation includes, among other things, fortifying buildings so that they are less likely to be severely damaged or completely destroyed during or immediately after a disaster. It is the key to recovery after a disaster. Mitigation allows individuals and communities to lessen post-disaster disruption and rebuild more quickly. States and cities have started implementing more stringent requirements in specific geographic areas they have designated as higher-risk. The purpose of this series of code changes proposed by Fire Safe North America is to encourage the debate in the code development process to identify what constitutes resilient buildings, and begin to identify issues that will become the basis for "new minimum requirements" for increased building resiliency.

Responding to the challenge of mitigating damage and resilient buildings is an admittedly complex topic. Fire Safe North America proposals are intended to reduce the total reliance of a community and its firefighters on automatic sprinkler systems in disaster-prone areas of the country where the water supply and/or power are likely to be interrupted, or are likely to have water supply system operational issues. The proposals, if approved, will fortify the building code requirements for the most vulnerable buildings to fire - Type IIB, IIIB, and VB construction, which are also classified as Risk Category III and IV in Table 1604.5, and in high-risk, disaster prone regions. The proposals modify the following code requirements in such buildings:

1. Reduce allowable area limits
2. Protect the path of egress by limiting travel distances
3. Protect the path of egress by protecting corridors
4. Require higher fire resistance ratings for occupancy separations

5. Require higher fire resistance ratings for building elements

These proposals are intended to be conservative so as to promote community resiliency and disaster mitigation by protecting essential buildings with both sprinkler protection AND fire resistance rated compartmentation. These proposals may be fairly considered to be the proverbial "belt-and suspenders" approach, requiring both sprinkler protection and increased fire resistance rated compartmentation in specific buildings in high risk areas for disasters.

Historically, the code has been written using the general assumption that automatic sprinklers will operate satisfactorily and there will be suitable power for such building operations. Code users design and build assuming that firefighters will be able to respond at their normal efficiencies. In some parts of the country, buildings impacted by disasters may remain without reliable water and/or power for a considerable period of time, well after the occurrence of the disaster. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself. Total reliance on an uninterrupted power and water supply may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

For example, more than 15% of the U.S. population lives in potential major earthquake areas. 41 states and territories have moderate to high risk. There is a real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also building-to-building fire spread. In October 17, 1989, a 7.1 earthquake in Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. On January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes. 85 spread to adjacent buildings and 10 approached or reached conflagration status. 1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone.

In 1997, the Red River flooded Grand Forks, North Dakota, causing $3.7 billion in flood losses, and displaced thousands of families and businesses. Similar data of increased fire incidents are available in other flood and hurricane-prone areas.

Undoubtedly, this will increase the cost of construction in these specific buildings. However, a recent FEMA's 2010 report "Mitigation's Value to Society" statement described how mitigation is an investment that needs to be made. A recent study by the NIBS Multihazard Mitigation Council (MMC) identified that each dollar spent on mitigation saves an average of $4.00 in disaster recovery.

Links:
http://www.dhses.ny.gov/oem/mitigation/documents/mitigations-value-to-society.pdf

The two-volume NIBS MMC study report is available for free download at:
http://www.nibs.org/index.php/mmc/projects/nhms

Cost Impact: Will increase the cost of construction
This change increases the fire ratings for occupancy separations in essential buildings to the hourly ratings specified for non-sprinklered buildings, and the increased cost will be consistent with the costs for non sprinklered buildings. The increased costs are only proposed for limited geographic areas.

G152-15 : 508.4.4.2 (New)-LOVELL5291

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Items G140-15, G152-15 and G171-15 were considered together. The committee disapproved all three. They were unconvinced by the proponents reason statement that these changes are the way to address buildings in higher rish areas. The committee felt that the imposing of a minimum of 2 hour fire resistive construction to be excessive.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

508.4.4.2 Fire-resistance ratings. The *fire-resistance ratings* in Table 508.4 shall not be permitted to be reduced to less than 2 hours in buildings of construction Types IIB, IIIB and VB in Risk Categories III and IV identified in Table 1604.5 where such buildings are any of the following:

1. Assigned to Seismic Design Category ~~C~~ D, E or ~~D~~ F in Table 1613.3.5(1).
2. Located in a flood hazard area established in accordance with Section 1612.3.
3. Located in a hurricane-prone region.

Commenter's Reason: As per the original reasoning statement, to satisfy the intent of the building code which not only addresses life safety, but also property protection and the welfare of the general public, the proposal as submitted is warranted. However, to introduce this "broad reaching" concept into the ICC consensus process this modification limits these criteria to Risk Categories III (substantial risk to human life) and IV (essential facilities) and additionally is limited to seismic category D or greater.

Public Comment 2:

Proponent : Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

508.4.4.2 Fire-resistance ratings. The *fire-resistance ratings* in Table 508.4 shall not be permitted to be reduced to less than 2 hours in sprinklered buildings of construction Types IIB, IIIB and VB in Risk ~~Categories III and~~ Category IV identified in Table 1604.5 where such buildings are any of the following:

1. Assigned to Seismic Design Category ~~C~~ D or ~~D~~ F in ~~Table 1613.3.5(1)~~ accordance with 1613.3.5.

2. Located in a *special flood hazard area* established in accordance with Section 1612.3.
3. Located in ~~a hurricane-prone~~ the *windborne-debris region* based on Figure 1609.3(2).

Exception: Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, that are provided with a secondary water supply in accordance with Section 403.3.3, and where fire pumps are protected against interruption of service in accordance with Section 913.

Commenter's Reason: The increased fire resistivity required by this proposal is intended to apply ONLY to buildings that are ALL of the following:

- Classified in the highest risk category.
- Located in the highest risk, disaster-prone regions for floods, hurricanes and seismic activity.
- Type IIB, IIIB or VB construction.

It excludes sprinklered buildings that have emergency backup systems for water and power in those regions.

Although the cause is debated, naturally-occurring and man-made disasters are increasing in number and severity in the United States and around the world. That fact is undisputed. The resilience of communities and the individual buildings within those communities is becoming of vital importance.

A National Institute of Building Sciences Publication (May, 2014) entitled "Moving Forward: Findings and Recommendations", states that "while a long history of building codes has laid the foundation for addressing the impacts of natural and man-made hazards, changes in the frequency and severity of events have brought new challenges — challenges requiring the engagement and support of policymakers. While building codes serve as the minimum requirements for life-safety in the building stock, basic life-safety protections do not fully address building performance requirements to achieve resilience."

Mitigation includes, among other things, fortifying buildings so that they are less likely to be severely damaged or completely destroyed during or immediately after a disaster. It is the key to recovery after a disaster. Mitigation allows individuals and communities to lessen post-disaster disruption and rebuild more quickly. States and cities have started implementing more stringent requirements in specific geographic areas they have designated as higher-risk. The purpose of this series of code changes proposed by Fire Safe North America is to encourage the debate in the code development process to identify what constitutes resilient buildings, and begin to identify issues that will become the basis for "new minimum requirements" for increased building resiliency.

Responding to the challenge of mitigating damage and resilient buildings is an admittedly complex topic. Fire Safe North America proposals are intended to reduce the total reliance of a community and its firefighters on automatic sprinkler systems in disaster-prone areas of the country where the water supply and/or power are likely to be interrupted, or are likely to have water supply system operational issues. The proposals, if approved, will fortify the building code requirements for the most vulnerable buildings to fire - Type IIB, IIIB, and VB construction, which are also classified as Risk Category IV in Table 1604.5, and in high-risk, disaster prone regions. The proposals modify the following code requirements in such buildings:

1. Reduce allowable area limits.
2. Protect the path of egress by limiting travel distances.
3. Protect the path of egress by protecting corridors.
4. Require higher fire resistance ratings for occupancy separations.
5. Require higher fire resistance ratings for building elements.

These proposals are intended to be conservative so as to promote community resiliency and disaster mitigation by protecting essential buildings with both sprinkler

protection AND fire resistance rated compartmentation. These proposals may be fairly considered to be the proverbial "belt and suspenders" approach, requiring both sprinkler protection and increased fire resistance rated compartmentation in specific buildings in high risk areas for disasters.

Historically, the code has been written using the general assumption that automatic sprinklers will operate satisfactorily and there will be suitable power for such building operations. Code users design and build assuming that firefighters will be able to respond at their normal efficiencies. In some parts of the country, buildings impacted by disasters may remain without reliable water and/or power for a considerable period of time, well after the occurrence of the disaster. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself. Total reliance on an uninterrupted power and water supply may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

For example, more than 15% of the U.S. population lives in potential major earthquake areas. 41 states and territories have moderate to high risk. There is a real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also building-to-building fire spread. On October 17, 1989, a 7.1 earthquake in Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. On January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes. 85 spread to adjacent buildings and 10 approached or reached conflagration status. 1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone.

In 1997, the Red River flooded Grand Forks, North Dakota, causing $3.7 billion in flood losses, and displaced thousands of families and businesses. Similar data of increased fire incidents are available in other flood and hurricane-prone areas.

Undoubtedly, this will increase the cost of construction in these specific buildings. However, a recent FEMA's 2010 report "Mitigation's Value to Society" statement described how mitigation is an investment that needs to be made. A recent study by the NIBS Multihazard Mitigation Council (MMC) identified that each dollar spent on mitigation saves an average of $4.00 in disaster recovery.

Links:

http://www.dhses.ny.gov/oem/mitigation/documents/mitigations-value-to-society.pdf

The two-volume NIBS MMC study report is available for free download at:

http://www.nibs.org/index.php/mmc/projects/nhms

Cost Impact: Will increase the cost of construction

This code change proposal will increase the cost of construction of some building types.

G152-15

G157-15

TABLE 509, 509.5 (New), 716.5

Proposed Change as Submitted

Proponent : Jay Wallace, The Boeing Company, representing The Boeing Company (jay.s.wallace@boeing.com)

2015 International Building Code

Revise as follows:

TABLE 509
INCIDENTAL USES

ROOM OR AREA	PROVIDE SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or ~~provide~~ automatic sprinkler system[a]
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or ~~provide~~ automatic sprinkler system[a]
Refrigerant machinery room	1 hour or ~~provide~~ automatic sprinkler system[a]
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies
Incinerator rooms	2 hours and ~~provide~~ automatic sprinkler system[a]
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours; or 1 hour and ~~provide~~ automatic sprinkler system[a]
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour or ~~provide~~ automatic sprinkler system[a]
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and ~~provide~~ automatic sprinkler system[a]
In ambulatory care facilities, laboratories not classified as Group H	1 hour and ~~provide~~ automatic sprinkler system[a]
Laundry rooms over 100 square feet	1 hour or ~~provide~~ automatic sprinkler system[a]
In Group I-2, laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour
In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume	1 hour

of 10 cubic feet or greater	
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet	1 hour or ~~provide~~ automatic sprinkler system [a]
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour
Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterruptable power supplies	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Electrical dry-type transformer rated over 112 ½ kVA Exception: Where transformers with Class 155 or higher insulation systems are separated from combustible material by a fire-resistant, heat-insulating barrier or by not less than 6 feet horizontally and 12 feet vertically or completely enclosed except for ventilating openings.	1 hour [d]
Electrical dry-type transformer rated over 35,000 volts.	1 hour and automatic sprinkler system [a b d]
Electrical oil-insulated transformer of any rating.	1-hour and automatic sprinkler system and oil containment serving all if multiple transformers; sized to contain the volume of oil in the largest unit [a b c d]

a. Automatic sprinkler system in accordance with Seciton 903.3.1.1.

b. An alternative automatic fire extinguishing system provided in lieu of an automatic sprinkler system in accordance with Section 903.1.1.

c. See the National Electric Code (NFPA 70) for detailed construction requirements and exceptions regarding oil and other liquid insulated transformers.

d. See additional requirements in Section 509.5.

For SI: 1 square foot = 0.0929 m^2, 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L, 1 cubic foot = 0.0283 m^3.

Add new text as follows:

509.5 Electrical room construction. Rooms containing transformers shall be in accordance with Section 1010.1.10 and with this section.

1. Where Table 509 only specifies separation without protection for rooms containing electrical transformers, the room shall be in accordance with the following:

1.1. Ventilation openings in surrounding building exterior walls or roof/ceiling construction shall be provided with an open area of not less than 3 square inches for each kVA of transformer capacity or not less than 1 square foot, whichever is greater. Ventilation openings shall be in accordance with Table 716.5 and protected wtih screens, grating or louvers. The ventilation openings shall be located in accordance with one of the following:

1.1.1. Provide 100 percent of ventilation openings near the ceiling of the electrical room; or

1.1.2. Proivde half of the ventilation openings at the floor and the balance of the openings near the ceiling of the electrical room.

1.2. Electrical rooms shall be provided at the exterior of the building to allow natural ventilation in accordance with Item 1, or

shall be provided with mechanical ventilation located and sized to effectively control the transformer full load losses and limit the termperature rise in accordance with the transformer rating.

1.3. Where the room is located at slab on grade condition, a concrete slab not less than 4 inches thick shall be provided.

1.4. Doors from the electrical room shall sw2ing in the diretion of egress travel away from teh electrical room. Doors shall be self-closing to a latched and locked position and shall be provided with panic hardware.

1.5. Pipes and ducts, other than those that service the electrical room, shall not pass through an electrical room.

2. Where table 509 specifies both separation and protection for rooms containing electrical transformers, the room shall be in accordance with Item 1 and the following:

2.1. the room shall be separated and protected as specified in Table 509 or it shall be located in an enclosure constructed of concrete or similar materials providing not less than three hour fire-resistance-rated construction with opening protectives provided in accordance with Table 716.5.

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	See Note b	D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	See Note b	D-H-W-180	Not Permitted	3	Not Permitted	W-180
	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	$1^1/_2$	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90	Not Permitted	$1^1/_2$	Not Permitted	W-90
Enclosures for shafts, interior exit stairways and interior exit ramps.	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 > 100 sq. in.=D-H-T-W-90	Not Permitted	2	Not Permitted	W-120
Horizontal exits in fire walls[e]	4	3	100 sq. in.	≤100 sq. in. = D-H-180 >	Not Permitted	4	Not Permitted	W-240

				100 sq. in.=D-H-W-240				
	3	3[a]	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-180	Not Permitted	3	Not Permitted	W-180
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures for shafts,exit access stairways, exit access ramps, interior exit stairways, ~~and~~ interior exit ramps; electrical room enclosure and exit passageway walls	1	1	100 sq. in.[c]	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
					Fire protection			
Other fire barriers	1	$^3/_4$	Maximum size tested	D-H	$^3/_4$		D-H	
Fire partitions: Corridor walls	1	$^1/_3$[b]	Maximum size tested	D-20	$^3/_4$[b]		D-H-OH-45	
	0.5	$^1/_3$[b]	Maximum size tested	D-20	$^1/_3$		D-H-OH-20	
Other fire partitions	1	$^3/_4$	Maximum size tested	D-H-45	$^3/_4$		D-H-45	
	0.5	$^1/_3$	Maximum size tested	D-H-20	$^1/_3$		D-H-20	

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Exterior walls	3	$1^1/_2$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in = D-H-W-90	Not Permitted	3	Not Permitted	W-180

	2	$1^1/_2$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
					Fire protection			
	1	$^3/_4$	Maximum size tested	D-H-45	$^3/_4$		D-H-45	
Smoke barriers					**Fire protection**			
	1	$^1/_3$	Maximum size tested	D-20	$^3/_4$		D-H-OH-45	

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of $1^1/_2$ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

Reason: Construction requirements for electrical room floors, walls, ceilings, openings, hardware etc are contained in the National Electrical Code (NFPA 70). The terms used are not the same as those in the IBC. The differences can cause confusion for the design professional which can result in costly mistakes or unecessary features. This proposal brings the building related requirements in the NEC into the IBC in terms consistent with the rest of the building element nomenclature to add clarity and consistency.
While editing Table 509 the term "provide" was deleted from its positions before "automatic sprinkler system" and inserted at the top of the table so that all enclosures and protection would be provided as intended by the table.

For the automatic sprinkler system requirement, a footnote was added for consistency with the rest of the IBC regarding automatic sprinkler systems.

Cost Impact: Will not increase the cost of construction
There is no intended change in construction requirements. Hopefully this proposal will clarify some confusing language and reduce costs.

G157-15 : T509-WALLACE5085

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The provisions for electrical rooms found in the National Electrical Code (NEC) can be an unwelcome surprise if not found early in the design process. Many feel that because there are construciton aspects to the NEC requirements that they should be located in the IBC. The committee found that the proposal and the version contained in the proposed modification still contained too many unclear performance elements. The lack of specificity would result in uneven compliance. Among the questions raised was coordination with the requirements for multiple exiits from an electrical room.

Assembly Motion: **As Modified**
Online Vote Results: **Failed**
Support: 20.63% (65) Oppose: 79.37% (250)
Assembly Action **:** None

Online Floor Modification:

509.5 Electrical room construction. Rooms containing transformers shall be in accordance with Section 1010.1.10 and with this section.

1. Where Table 509 only specifies separation without protection for rooms containing electrical transformers, the room shall be in accordance with the following:

1.1. Ventilation openings in surrounding building exterior walls or roof/ceiling construction shall be provided with an open area of not less than 3 square inches for each kVA of transformer capacity or not less than 1 square foot, whichever is greater. Ventilation openings shall be in accordance with ~~Table~~ Sections 705.8 and 716.5 and protected wtih screens, grating or louvers. The ventilation openings shall be located in accordance with one of the following:

1.1.1. Provide 100 percent of ventilation openings near the ceiling of the electrical room; or

1.1.2. Proivde half of the ventilation openings at the floor and the balance of the openings near the ceiling of the electrical room.

1.2. Electrical rooms shall be provided at the exterior of the building to allow natural ventilation in accordance with Item 1, or shall be provided with mechanical ventilation located and sized to effectively control the transformer full load losses and limit the termperature rise in accordance with the transformer rating.

1.3. Where the room is located at slab on grade condition, a concrete slab not less than 4 inches thick shall be provided.

1.4. Doors from the electrical room shall sw2ing in the diretion of egress travel away from teh electrical room. Doors shall be self-closing to a latched and locked position and shall be provided with panic hardware.

1.5. Pipes and ducts, other than those that service the electrical room, shall not pass through an electrical room.

2. Where table 509 specifies both separation and protection for rooms containing electrical transformers, the room shall be in accordance with Item 1 and the following:

2.1. ~~the~~The room shall be separated ~~and protected as specified in Table 509 or it shall be located in~~by an enclosure constructed of concrete or similar materials providing not less than ~~three~~one hour fire-resistance-rated construction ~~with~~and protected as specified in Table 509, or without protection the enclosure shall be increased to 3 hour fire-resistance-rated construction. In either case, opening protectives shall be provided in accordance with ~~Table~~ Sections 705.8 and 716.5.

Individual Consideration Agenda

Public Comment 1:

Proponent : **Jay Wallace, The Boeing Company, representing The Boeing Company (jay.s.wallace@boeing.com) requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Building Code

TABLE 509
INCIDENTAL USES

ROOM OR AREA	PROVIDE SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or automatic sprinkler system
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or automatic sprinkler system
Refrigerant machinery room	1 hour or automatic sprinkler system

Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies
Incinerator rooms	2 hours and automatic sprinkler system
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours; or 1 hour and automatic sprinkler system
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour or automatic sprinkler system
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and automatic sprinkler system
In ambulatory care facilities, laboratories not classified as Group H	1 hour and automatic sprinkler system
Laundry rooms over 100 square feet	1 hour or automatic sprinkler system
In Group I-2, laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour
In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater	1 hour
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet	1 hour or automatic sprinkler system
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour
Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterruptable power supplies	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
~~Electrical dry-type transformer rated over 112 ½ kVA~~ ~~Exception: Where transformers with Class 155 or higher insulation systems are separated from combustible material by a fire-resistant, heat-insulating barrier or by not less than 6 feet horizontally and 12 feet vertically or completely enclosed~~	~~1 hour~~ [d]

~~except for ventilating openings.~~	
~~Electrical dry-type transformer rated over 35,000 volts.~~	~~1 hour and automatic sprinkler system [a b d]~~
~~Electrical oil-insulated transformer of any rating.~~	~~1-hour and automatic sprinkler system and oil containment serving all if multiple transformers; sized to contain the volume of oil in the largest unit [a b c d]~~
Electrical installations and transformers	See the National Electrical Code (NEC) NFPA 70 Section 110.26 through 110.34 and Section 450.8 through the end of Article 450 for protection and/or separation requirements

~~a. Automatic sprinkler system in accordance with Seciton 903.3.1.1.~~

~~b. An alternative automatic fire extinguishing system provided in lieu of an automatic sprinkler system in accordance with Section 903.1.1.~~

~~c. See the National Electric Code (NFPA 70) for detailed construction requirements and exceptions regarding oil and other liquid insulated transformers.~~

~~d. See additional requirements in Section 509.5.~~

For SI: 1 square foot = 0.0929 m^2, 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L, 1 cubic foot = 0.0283 m^3.

~~509.5 Electrical room construction.~~ ~~Rooms containing transformers shall be in accordance with Section 1010.1.10 and with this section.~~

~~1. Where Table 509 only specifies separation without protection for rooms containing electrical transformers, the room shall be in accordance with the following:~~

~~1.1. Ventilation openings in surrounding building exterior walls or roof/ceiling construction shall be provided with an open area of not less than 3 square inches for each kVA of transformer capacity or not less than 1 square foot, whichever is greater. Ventilation openings shall be in accordance with Table 716.5 and protected wtih screens, grating or louvers. The ventilation openings shall be located in accordance with one of the following:~~

~~1.1.1. Provide 100 percent of ventilation openings near the ceiling of the electrical room; or~~

~~1.1.2. Proivde half of the ventilation openings at the floor and the balance of the openings near the ceiling of the electrical room.~~

~~1.2. Electrical rooms shall be provided at the exterior of the building to allow natural ventilation in accordance with Item 1, or shall be provided with mechanical ventilation located and sized to effectively control the transformer full load losses and limit the termperature rise in accordance with the transformer rating.~~

~~1.3. Where the room is located at slab on grade condition, a concrete slab not less than 4 inches thick shall be provided.~~

~~1.4. Doors from the electrical room shall sw2ing in the diretion of egress travel away from teh electrical room. Doors shall be self-closing to a latched and locked position and shall be provided with panic hardware.~~

~~1.5. Pipes and ducts, other than those that service the electrical room, shall not pass through an electrical room.~~

~~2. Where table 509 specifies both separation and protection for rooms containing electrical transformers, the room shall be in accordance with Item 1 and the following:~~

~~2.1. the room shall be separated and protected as specified in Table 509 or it shall be located in an enclosure constructed of concrete or similar materials providing not less than three hour fire-resistance-rated construction with opening protectives provided in accordance with Table 716.5.~~

Commenter's Reason: The original proposal attempted to bring all the building type (location, walls, doors, floors, hardware, ventilation, etc) requirements from the NEC and place them in the IBC where they could easily be found by those responsible to design the building. The conditions and the requirements vary so much depending on the electrical equipment that it became too cumbersome to address all the combination of protectives.
This modification accomplishes the main two objectives of the original proposal: 1) make users aware that important requirements are in another publication and 2) make the requirements consistent with IBC language, format and references. Item one is accomplished by pointing to the sections in the NEC where

space and building type requirements are located. Item two is accomplished by placing the pointer in Table 509 Incidental Uses where separations are required to be Fire Barriers and protectives are required per Section 716 including Table 716.5.

The original change proposed to Table 716.5 is still appropriate where it clarifies that electrical room enclosures are of the more stringent Fire Barrier type with increased opening protectives than is required for other fire barriers.

The added Section 509.5 Electrical room construction is dropped completely so that users will still have to access the NEC for such requirements.

The footnotes a-d to Table 509 are also all removed. Footnote "a" is already covered in Section 509. Footnote "b" is already covered in Section 903. Footnote "c" is covered by this modification to Table 509 and Footnote "d" is not needed since Section 509 is deleted in its entirety.

The committee stated that there was a lack of clarity regarding the number of exits required from an electical room. This proposal does not attempt to clarify that point however, it is clear that the NEC does NOT require two exits from an electrical room, it only requires due to certain conditions, two paths of egress from an electical Working Space, the area in front of the equipment concerned. The room size and configuration may acheive two egress points from the Working Space while only having one exit from the room. Given some room sizes and configuration, two exit doors from the room may be the only way to acheive two egress points from the Working Space when required by the NEC.

As developers of the Building Code, we own these building type requirements; they rightfully belong in the IBC. This proposal bridges the gap between two unique publications that use some of the same terms with different meanings, to bring clarity and consistency to the building design professional.

G157-15

G158-15
509.3

Proposed Change as Submitted

Proponent : Stephen Thomas, Colorado Code Consulting, LLC, representing Colorado Chapter ICC (sthomas@coloradocode.net)

2015 International Building Code

Delete without substitution:

~~**509.3 Area limitations.** Incidental uses shall not occupy more than 10 percent of the *building area* of the *story* in which they are located.~~

Reason: This section is unenforceable. Many incidental uses exceed 10% of the floor area of the story they are located in. In some cases the entire building can be an incidental use. For example, a heating plant for a hospital will have boilers that exceed the limits of Table 509, but are located in a single building. Another example is the location of laboratories and vocational classrooms in a high school. It is very common to have these areas exceed 10% of the area of the story that they are located in. The interpretation from ICC is to classify these areas as a different occupancy. This is contrary to the requirements of Section 509.2. It states "Incidental uses shall not be individually classified in accordance with Section 302.1". If you do classify the chemistry laboratory as an occupancy, it would be classified as a Group E occupancy (assuming the amount of chemicals do not exceed the MAQ's in Section 307.1). Therefore, if the lab exceeds 10% of the story area, there would be no separation between the lab and an adjacent classroom. However, if it was less than 10%, a separation would be required. This doesn't make sense. By deleting the area limitation, this problem is resolved and a separation would be required regardless of the size.

Bibliography: None

Cost Impact: Will not increase the cost of construction
There is no cost impact from this change. This change is a clarification of th existing language back to the way it was in the 2006 IBC.

G158-15 : 509.3-THOMAS3647

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The complete elimination of an area limitation of these facilities was not acceptable. If they are larger than 10% of a story there is other avenues in the code to address these uses.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Stephen Thomas, Colorado Code Consulting, LLC, representing Colorado Chapter ICC (sthomas@coloradocode.net)

requests Approve as Submitted.

Commenter's Reason: We disagree with the committee. There are two requirements in Section 509 for incidental uses that relate to this issue. The first is Section 509.2. It states "Incidental uses shall not be individually classified in accordance with Section 302.1.I". The testimony at the committee hearings was that if the incidental use exceeds 10%, you classify it as a separate occupancy. This section is mandatory and does not allow the space to be classified as an occupancy. There is also a problem with how to classify some of these uses. It is not clear what occupancy you would classify a battery rooms, incinerator rooms or furnace rooms. The intent of this section is to provide separation between a more hazardous use than the rest of the building. If you classify the space as a different occupancy, the building can be classified as a non-separated occupancy and no type of separation would be requireed between the occupancies. You would also have the same issue if you classify the room (school chemistry laboratory) as an occupancy. There would be not any separation between the more hazardous use and the adjacent occupancy because they would be the same occupancy.
In addition, if the space was considered a different occupancy, it will create a conflict for health care facilities in NFPA 101. That standard does not restrict the size of incidental uses in health care facilities. It requires a separation, regardless of the size of the space.

This section is also not clear. It limits the size of the incidental use to 10% of the story area. It is not clear whether this is an aggregate of incidental uses or each individual space. For example, in a health care facility, there are several incidental uses throughout each story. The code does not give us enough direction to deall with this issue.

We feel the better option is to delete the 10% limitation for these more hazardous uses. Therefore, a separation would be required, no matter how large the space is. This provides protection from the occupants of the building from the inherent hazards associated with an incidential use.

G158-15

G160-15
510.2

Proposed Change as Submitted

Proponent : Marshall Klein, representing NMHC

2015 International Building Code

Revise as follows:

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours. Where vertical offsets are provided as part of a horizontal assembly, the vertical offset and the structure supporting the vertical offset shall have a fire-resistance rating of not less than 3 hours..
2. The building below the *horizontal assembly* is of Type IA construction.
3. *Shaft*, *stairway*, *ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5.

   Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided:

   1. The building above the *horizontal assembly* is not required to be of Type I construction;
   2. The enclosure connects fewer than four *stories*; and
   3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.
4. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, M, R or S occupancies.
5. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.
6. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the *grade plane*.

Reason: It is very common for projects built under the provisions of Section 510.2 to include vertical offsets to accommodate elevation changes for a particular site or different ceiling heights within a story. Currently, the code provides no guidance on

how to deal with these vertical offset assemblies, and the designer and code official are left to handle them as alternative methods or modifications in accordance with Chapter 1. This change will provide appropriate regulations for ensuring that any vertical offset maintains a proper and continuous fire rating for both the horizontal and vertical portions of the separation, plus it ensures that the supporting structure for a vertical offset has an equivalent fire-resistance rating.
It is worth noting that the code deals with this issue in reverse for firewalls by permitting horizontal offsets in those vertical assemblies, as described in Section 706.1 of the 2012 IBC Commentary, which states "...offsetting two vertical sections of firewalls is permissible as long as the required fire resistance rating and structual stability are maintained."

Cost Impact: Will not increase the cost of construction

There should be no impact on the cost of construction because the intent of this proposal is simply to state how the current provisions should be applied. However, there will be a decrease in administrative costs for cases where an alternative method or modification would have previously been necessary as part of the complaince path.

G160-15 : 510.2-KLEIN4223

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The proposal provides design flexibility to address unique sites. It is consistent with other provisions of the code where you support rated construction with structure of like rating. This is not about gaming the intent of this provision, but solves a real life design issue in hillside locations. The word 'horizontal' can be a hang up in the reasonable solutions to a steep site.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Lee Kranz, City of Bellevue, representing Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours. Where vertical

offsets are provided as part of a horizontal assembly, the vertical offset ~~and the structure supporting the vertical offset~~ shall ~~have~~ be constructed as a *fire barrier* in accordance with Section 707, with a fire-resistance rating of not less than 3 hours.~~.~~

2. The building below the *horizontal assembly* is of Type IA construction.
3. *Shaft*, *stairway*, *ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5.

   Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided:

   1. The building above the *horizontal assembly* is not required to be of Type I construction;
   2. The enclosure connects fewer than four *stories*; and
   3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.
4. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, M, R or S occupancies.
5. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.
6. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the *grade plane*.

Commenter's Reason: Vertical offsets in 3 hour horizontal assemblies are a reality that are being addressed with alternate methods per Chapter 1. The Washington Association of Building Officials Technical Code Development Committee supports approval of the original code change. This public comment improves the original code change by clarifying that the vertical offsets must be designed and constructed as a fire barriers to address such issues as continuity, supporting construction, area limitations for openings in the wall and fire-resistance rating requirements for openings.

G160-15

G161-15
510.2

Proposed Change as Submitted

Proponent : Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours. The horizontal assembly shall be of Type 1 construction.
2. The building below the *horizontal assembly* is of Type IA construction.
3. *Shaft*, *stairway*, *ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5.

   Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided:

   1. The building above the *horizontal assembly* is not required to be of Type I construction;
   2. The enclosure connects fewer than four *stories*; and
   3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.
4. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, M, R or S occupancies.
5. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.
6. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the *grade plane*.

Reason: Existing language is unclear and can be interpreted to only require the greater type of construction below the 3 hour separation. The addition of the sentence to Item 1 makes it clear that the 3 hour horizontal assembly can not be constructed out of a type of construction that is different than the lower building.

Cost Impact: Will not increase the cost of construction
This code change does not create a new requirement. It clarifies existing code language to prevent misinterpretation of the code

G161-15 : 510.2-MAIEL5410

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal's intent is to clarify the construction of the horizontal assembly. The committee suggested that a better clarification if the change remains in Item 1 is to simply say the horizontal assembly is made of non-combustible materials. An alternative suggested was to move the construction requirement for the horizontal assembly to be located in Item 2 - which specifies the constructino of the building below the horizontal assembly.

Assembly Motion: As Submitted
Online Vote Results: Failed
Support: 43.73% (129) Oppose: 56.27% (166)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours. ~~The horizontal assembly shall be of Type 1 construction.~~ _
2. The horizonal assembly and the building below the *horizontal assembly*~~,~~ is of Type IA construction.
3. *Shaft*, *stairway*, *ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5.

   Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-*

resistance rating, provided:

1. The building above the *horizontal assembly* is not required to be of Type I construction;
2. The enclosure connects fewer than four *stories*; and
3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.

4. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, M, R or S occupancies.
5. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.
6. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the *grade plane*.

Commenter's Reason: Needs modification

Public Comment 2:

Proponent : Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours. ~~The horizontal assembly shall be of Type 1 construction.~~
2. The building below<u>, including</u> the *horizontal assembly,* is of Type IA construction.
3. *Shaft*, *stairway*, *ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5.

   Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided:

   1. The building above the *horizontal assembly* is not required to be of Type I construction;
   2. The enclosure connects fewer than four *stories*; and

3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.

4. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, M, R or S occupancies.
5. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.
6. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the *grade plane*.

Commenter's Reason: In Mephis, the committee suggested that instead of adding a sentence to condition 1, condition 2 to be modified accordingly. The modification here is reflecting the committee's concern.

G161-15

G162-15
510.2

Proposed Change as Submitted

Proponent : Mark Nowak, representing Steel Framing Alliance (mnowak@steelframing.org)

2015 International Building Code

Revise as follows:

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours.
2. The building below the *horizontal assembly* is of Type IA construction.
3. *Shaft*, *stairway*, *ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5.

   Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided:

   1. The building above the *horizontal assembly* is not required to be of Type I construction;
   2. The enclosure connects fewer than four *stories*; and
   3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.
4. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, M, R or S occupancies.
5. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.
6. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the *grade plane*.
7. <u>Type V buildings with combustible structural elements above the horizontal separation shall be separated from lot lines and buildings on the same lot by not less than 50 feet.</u>

Reason: This proposal will correct an inconsistency in the code that currently permits a shorter separation distance to adjacent buildings or lot lines for buildings

with combustible structural elements versus similar sized Type IIA noncombustible buildings. The code currently requires Type IIA residential buildings, constructed with non-combustible structural elements, to be separated by a minimum of 50 feet in Section 510.6 but no such separation is required for combustible Type V construction in Section 510.2 despite the higher risk with combustible construction.
More builders and designers are using Section 510 of the code to extend the allowable height and stories of residential buildings that use combustible structural framing. Marketing efforts such as WoodWorks, a program with support of the major wood and timber associations, government agencies, and other partners, continue to promote the use of combustible framing in mid-rise residential and other structures through Section 510 of the code. It is questionable that the code ever intended combustible framing to be used at heights now being constructed -- the allowable heights have crept upward with allowances for sprinkler systems added since the requirements in Section 510 first entered buildings codes.

Fires from mid-rise Type V buildings with combustible structural elements are epidemic and catastrophic yet there is little protection required of them relative to their risk versus other types of construction. This proposal will correct this deficiency in the code to better protect nearby buildings and provide firefighters clearance between buildings to address fires during and after construction. The 50 foot separation is a minimum requirement that will ensure at least the same level of protection for buildings with combustible structures as for similar Type IIA buildings when additional height is obtained though use of the special provisions in Section 510 of the code. The 50 foot distance in this proposal extends the precedent set in the code for buildings with lower risk (Type IIA) of similar size to the higher-risk combustible framing used in Type V buildings under Section 510 of the code.

In addition to providing a separation for finished buildings, the proposed 50 foot distance will also improve the ability of firefighters to address fires during construction. In just the past few years, a significant number of major fires throughout the United States in buildings under construction have occurred in four story and higher buildings that have used combustible framing members. During the construction phase, these buildings are extremely vulnerable due to the lack of operational active and passive fire resistance. These fires have damaged nearby properties, required major street closures including interstates, and occupied fire fighting resources to the extent that other areas were left under-protected for extended periods. As recently as December of 2014, a major fire in Los Angeles with five stories of wood framing over a two story concrete podium not only resulted in millions of dollars in damage to the building under construction, but also damaged adjacent buildings. The seven-story apartment building known as the DaVinci was a complete loss after the fire that was fueled by the five stories of wood frame construction. More than 250 firefighters were dispatched to the scene. Flames were visible for miles and the structure's wooden frame forced the closure of northbound Harbor (110) Freeway. Computers and cubicles melted in neighboring buildings. Hundreds of thick windows cracked as well. This is typical of the risk that these buildings pose to themselves and surrounding properties. Some examples of other larger recent fires that illustrate the risk of combustible framing in mid-rise buildings include:

1. Monroe Apartments, Portland, OR August 8, 2013
2. Student Apartments, Kingston, Ontario, CAN December 17, 2013
3. 550 East and 500 South, Salt Lake City, UT February 9, 2014
4. Commercial Building, Roxbury, MA March 3, 2014
5. Mission Bay Project, San Francisco, CA March 11, 2014
6. Axis Apartments, Houston, TX, March 25, 2014
7. Beacon Street, Boston, MA, March 27, 2014
8. Gables Upper Rock, Rockville, MD, April 1, 2014
9. SE Tech Center Drive, Vancouver, WA, June 19, 2014
10. Victoria Commons, Kitchener, Ontario, CAN, July 22, 2014
11. Apollo Way, Madison, WI, August 8, 2014

Cost Impact: Will increase the cost of construction
This proposal will impact the cost of construction for some buildings on small lots or in urban or other high density areas where the separation distance is especially important for increased safety. Depending on the size of the lot and proposed building, some buildings may not be able to meet the separation distance and will need to be reduced in height or number of stories. In some cases, non-combustible construction could be used to protect the building if the setback cannot be achieved. Any added costs in these few buildings can be offset by the added safety and lower insurance costs throughout construction and the life of the structure. Building with reasonable separation distances will also be offset by the avoided costs of rebuilding after fires and avoidance of damage to nearby properties and occupants.

G162-15 : 510.2-NOWAK3654

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee found the proposal to be a flawed concept. Section 510.6 has its own set of parameters for the special design allowed under that section; 510.2 also has its unique set of parameters for special design. It is irrelevant to try to take one element of the criteria of Section 510.6 and superimpose it into 510.2.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Approve as Submitted.

Commenter's Reason: Regardless of where the requirements come from, the fact still remains that a large, overly tall combustible building is only required to provide 30 ft. of separation distance, while a similiar building with non-combustible construction is required to provide 50 ft.

Public Comment 2:

Proponent : Mark Nowak, representing Steel Framing Allaince requests Approve as Submitted.

Commenter's Reason: Approval of this public comment will correct a deficiency and inconsistency in the code whereby combustible buildings of the same or similar height as non-combustible buildings can be built with little to no setback from property lines while the non-combustible building is required to have a 50-foot setback. The committee's disapproval statement indicates that Sections 510.2 and 510.6 were developed with their own unique requirements and parts of them can't be applied to the other sections. However, this fails to acknowledge several key points:

1. The special provisions in Section 510 were developed before additional height

allowances for sprinklers were introduced. Very few people anticipated the use of combustible materials at the heights we now see and the large number of related catastrophic fires that are occurring

2. The vast majority of fires in the past several years in Type V buildings using the additional height provisions in Section 510 have occurred during construction. A reasonable separation distance during construction is one of the most important steps in resisting the spread of fire to adjacent buildings and other property. It is also critical for access by fire fighters.
3. Since the submission of the original proposal, there have been multiple fires this year in wood-framed apartment buildings where the buildings have been occupied. A January 2015 fire in Edgewater, NJ burned an occupied building to the ground that had already burned down during its original construction years earlier. A June 2015 fire in Columbia County, GA also occurred in an occupied retirement apartment complex. The fires in buildings under construction and occupied buildings demonstrate that further protection is required. The proposed 50 foot separation distance is one step that can help prevent future property damage and save lives.

The recent fires in occupied multi-story buildings of Type V construction brings the total number of documented catastrophic fires in these types of buildings to over a dozen in just the past two years. These fires demonstrate that there is a need to re-evaluate the current code language and take steps to prevent these events in the future. Although now is not the time to further loosen standards but to strengthen our codes, even those proponents of taller wood buildings see the need for a minimum separation distance between the building and the lot line or adjacent buildings. In proposal G165-15, the proponents for further expanding the allowable height for wood framed buildings included a 50 foot setback in their proposal.

Under the existing language in the code a Type IIA (non-combustible framing), R-1 building under Section 510.6 that is five stories can actually be shorter in height than an R-1 building of Type V (combustible framing) construction over a concrete podium built under Section 510.2, depending on the ceiling height of the buildings. Yet the Type IIA (noncombustible) building would require a 50 foot setback and the combustible building would not. This inconsistency in the code will be corrected by this proposal while also addressing the threat from fires during and after construction from combustible construction in Group R buildings. The 50 foot setback in this proposal extends the precedent set in the code for group R-1 and R-2 buildings of noncombustible construction to Type V buildings that pose a much higher fire risk.

G162-15

G165-15

510.12 (New)

Proposed Change as Submitted

Proponent : Dennis Richardson, representing American Wood Council (drichardson@awc.org)

2015 International Building Code

Add new text as follows:

510.12 Group R-1 and R-2 buildings of Type IV HT construction. The height and story limitations for buildings of Type IV HT construction in Groups R-1 and R-2 shall be increased to nine stories and 100 feet (30 480 mm) provided all of the following are met:

1. The heavy timber construction shall be not less than 2 hour fire resistance rated and protected with a minimum of one layer of 5/8 inch type X gypsum board on all interior wall surfaces and a minimum of two layers of 5/8 inch type X gypsum board on the ceiling side of all horizontal assemblies.
2. The building has a fire separation distance of not less than 50 feet (15 240 mm).
3. The exits are segregated in an area enclosed by a cross laminated timber 2 hour fire-resistance-rated walls protected with two layers of 5/8 inch type X gypsum board or equivalent on the room side of all walls adjacent to the enclosure.
4. Wall and ceiling assemblies with multiple layers of gypsum board shall be permitted to be furred with noncombustible or fire retardant treated wood furring provided the cavity is filled with securely attached mineral wool insulation and at least one layer of gypsum board is directly attached to the heavy timber structure. Multiple layers of gypsum board shall be permitted to be secured to furring as required in Section 722.5.1.2.1 or Figure 722.5.1(3) for columns and in Section 722.3.2.5 for walls. Attachment of multi layer gypsum wallboard to ceilings shall be permitted to be as required for single assemblies attached to resilient channels in Table 721.1(3) and the base layer or layers shall be permitted to be attached directly to the Type IV structure as required by item 21 of Table 721.1(3). Other attachment shall be permitted to be used if specified by the manufacturer and approved.
5. Buildings of Type IV construction shall be permitted to be located over a building with multiple occupancy groups meeting the provisions of Section 510.2.

Reason: Reason: Mass timber products such as cross-laminated timber (CLT) provide the structural and fire resistance capabilities necessary for taller buildings. This proposal closely follows the special occupancy for Type IIA structures in 510.6 as a model. Existing section 510.6 allows 1 fire resistance rated light frame steel buildings to be up to 9 stories and 100 feet tall when surrounded by 50 feet. This proposal goes to the same height and number of stories but requires additional fire resistance (2 hours instead of 1 hour throughout). The CLT is provided with minimum

protection throughout the inside with 5/8" type X gypsum (one layer at all interior walls and two layers at all ceilings) and the overall assembly must meet the 2 hour E119 fire resistance test. In addition to the mass timber protected with type X gypsum board, the building is provided with an NFPA 13 sprinkler system throughout and is surrounded by yards of 50 feet. The entire fire and life safety "package" is at least equivalent to what is currently specified in 510.6.
The current section 510.6 applying to one hour type II construction requires stairways to be segregated into areas separated by a two hour fire wall. Although the existing language for 510.6 is somewhat unclear, this can be accomplished in the current 510.6 with a two hour fire wall separating the one hour type II building into two fire areas, each with stairways or with separate fire walls at each exit enclosure.
A fire wall is not necessary with this proposal since the entire building is two hour fire resistance rated construction. Stairways are provided with additional protection with a second layer of 5/8" type x gypsum board on the fire side of rooms adjacent to the stairways. Provisions are included to allow the installation of resilient channels and spaces filled with insulation for sound attenuation. Additionally it is noted this building may incorporate a 3 hour separation below if additional occupancies are to be housed in a podium below.
This code change helps address concerns about climate change by allowing a taller building to utilize cross laminated timber which sequesters carbon and has low embodied energy. There is much focus on the future utilization of this building system. The following link gives examples of CLT buildings throughout the world.
http://www.rethinkwood.com/tall-wood-survey
In addition the following link provides access to any additional information regarding this or other code changes proposed by American Wood Council.
http://www.awc.org/Code-Officials/2015-IBC-Code-Changes/

Cost Impact: Will not increase the cost of construction
This new code section provides a new option for construction that is not currently available.

G165-15 : 510.12 (New)-RICHARDSON4889

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee was uncomfortable that the proposal would allow a more than doubling of the height (Number of stories) allowed in buildings of Type IV construciton which would result in an overall increase in fuel load.. The committee recogrnized the hard work that went into the proposal and that it included provisions intended to assure that a 9 story wood frame building was a safe one. The committee felt that the text requiring 50 foot separation was unclear whether it applied to one side, or all sides, of the building. While testimony was clear that the proposal required 2 hour construction, and such construction would need to comply with the tested assemblies, the committee was unclear regarding the testing of these assemblies and hoped the language would be stronger regarding such. The Chapter 7 references appear to be to specific attachments to steel and concrete framing and not to wood as would occur in these buildings. There was discomfort that such a building could be the upper building of a podium structure under Section 510.2. Finally, it was suggested that the exit separations be allowed to be of other materials in addition to the CLT as currently listed in the proposal.

Assembly Motion: As Modified

Online Vote Results: Failed

Support: 12.11% (43) Oppose: 87.89% (312)

Assembly Action : **None**

Online Floor Modification:

510.12 Group R-1 and R-2 buildings of Type IV HT construction. The height and story limitations for buildings of Type IV HT construction in Groups R-1 and R-2 shall be increased to nine stories and 100 feet (30 480 mm) provided all of the following are met:

1. The ~~heavy timber~~load bearing construction shall be of solid heavy timber elements not less than 2 hour fire resistance rated and protected with a minimum of one layer of 5/8 inch type X gypsum board on all interior wall surfaces and a minimum of two layers of 5/8 inch type X gypsum board on the ceiling side of all horizontal assemblies.
2. The building has a fire separation distance of not less than 50 feet (15 240 mm).
3. The exits are segregated in an area enclosed by a cross laminated timber 2 hour fire-resistance-rated walls protected with two layers of 5/8 inch type X gypsum board or equivalent on the room side of all walls adjacent to the enclosure.
4. Wall and ceiling assemblies with multiple layers of gypsum board shall be permitted to be furred with noncombustible or fire retardant treated wood furring provided the cavity is filled with securely attached mineral wool insulation and at least one layer of gypsum board is directly attached to the heavy timber structure. Only the layers of gypsum board applied directly to the heavy timber in accordance with the applicable E119 or UL 263 test report shall be utilized to meet the 2 hour required fire resistance rating. Multiple layers of gypsum board shall be permitted to be secured to furring as required in Section 722.5.1.2.1 or Figure 722.5.1(3) for columns and in Section 722.3.2.5 for walls. Attachment of multi layer gypsum wallboard to ceilings shall be permitted to be as required for single assemblies attached to resilient channels in Table 721.1(3) and the base layer or layers shall be permitted to be attached directly to the Type IV structure as required by item 21 of Table 721.1(3). Other attachment shall be permitted to be used if specified by the manufacturer

and approved.

5. Buildings of Type IV construction shall be permitted to be located over a building with multiple occupancy groups meeting the provisions of Section 510.2.

Individual Consideration Agenda

Public Comment 1:

Proponent : Stephen DiGiovanni, representing myself (sdigiovanni@clarkcountynv.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

510.12 Group R-1 and R-2 buildings of Type IV HT construction. The height and story limitations for buildings of Type IV HT construction in Groups R-1 and R-2 shall be increased to nine stories and 100 feet (30 480 mm) provided all of the following are met:

1. The heavy timber construction shall be not less than 2 hour fire resistance rated, as tested without any gypsum board attached, and further protected with a minimum of one layer of 5/8 inch type X gypsum board on all interior wall surfaces and a minimum of two layers of 5/8 inch type X gypsum board on the ceiling side of all horizontal assemblies.
2. The building has a fire separation distance of not less than 50 feet (15 240 mm).
3. The exits are segregated in an area enclosed by a cross laminated timber 2 hour fire-resistance-rated walls protected with two layers of 5/8 inch type X gypsum board or equivalent on the room side of all walls adjacent to the enclosure.
4. Wall and ceiling assemblies with multiple layers of gypsum board shall be permitted to be furred with noncombustible or fire retardant treated wood furring provided the cavity is filled with securely attached mineral wool insulation and at least one layer of gypsum board is directly attached to the heavy timber structure. Multiple layers of gypsum board shall be permitted to be secured to furring as required in Section 722.5.1.2.1 or Figure 722.5.1(3) for columns and in Section 722.3.2.5 for walls. Attachment of multi layer gypsum wallboard to ceilings shall be permitted to be as required for single assemblies attached to resilient channels in Table 721.1(3) and the base layer or layers shall be permitted to be attached directly to the Type IV structure as required by item 21 of Table 721.1(3). Other attachment shall be permitted to be used if specified by the manufacturer and approved.
5. Buildings of Type IV construction shall be permitted to be located

over a building with multiple occupancy groups meeting the provisions of Section 510.2.

Commenter's Reason: It is not clear from the original language whether the heavy timber achieves the two-hour rating test result with or without the gypsum attached. This comment seeks to clarify that the heavy timber assembly must achieve a two hour rating without the benefit of the gypsum during the test, resulting in added protection when the gypsum is added for construction.

Public Comment 2:

Proponent : Dennis Richardson, American Wood Council, representing American Wood Council (drichardson@awc.org) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

510.12 Group R-1 and R-2 buildings of two-hour Type IV construction The height limitation for buildings of Type IV construction containing Groups R-1 and R-2 occupancies shall be increased to nine *stories* and 100 feet (30 480 mm) where the building is separated by not less than 50 feet (15 240 mm) from any other building on the *lot* and from adjacent *lot lines* or *lot lines* on the opposite sides of public ways, provided all of the following are met:

1. All load bearing structural elements shall be heavy timber complying with Sections 602.4 and 2304.11; and have a fire resistance rating of not less than 2 hours in accordance with Section 703.2.
2. The interior surfaces of all heavy timber walls and ceilings shall be covered by two layers of 5/8" Type X gypsum board, with all edges of the face layer offset 18 inches from those of the base layer. The base layer shall be attached with 1.75 inch #6 Type S drywall screws at 12 inches on center in both directions and the face layer shall be attached with 2.25 inch #6 Type S drywall screws at 12 inches on center in both directions offset from the screws in the base layer by 6 inches in both directions. One layer of 5/8 inch Type X gypsum sheathing shall be attached to the outside of the exterior heavy timber walls with minimum 1 ¾ inch galvanized roofing nails 12 inches on center each way and 6 inches on center at all joints or ends. All panel edges shall be attached with drywall screws or roofing nails located at least 1.5 inches but not more than 2 inches from the panel edge.

Commenter's Reason: This code change proposal would create a special provision option for 2-hour Fire Resistance-rated heavy timber construction that is similar to section 510.6 for Group R-1 and R-2 buildings of Type IIA construction.
Due to the positive environmental characteristics, including low embodied energy and carbon sequestration, there is a strong desire to utilize mass timber, including Cross Laminated Timber (CLT), for multistory residential construction. The American Wood Council (AWC) is committed to finding technical solutions to make the desired use of mass timber a realistic option, for taller and larger buildings, that is both safe and environmentally-friendly.

This proposal requires all load bearing elements to have a 2-hr fire resistance rating which is more conservative than Section 510.6 which permits light frame steel

construction with a 1-hr fire resistance rating at the same height and number of stories. This proposal adds two layers of 5/8" type X gypsum board on the inside surfaces of heavy timber ceiling and wall elements and one layer of 5/8" type X gypsum sheathing on outside surfaces of exterior heavy timber walls.

Both existing Section 510.6 and proposed Section 510.12 require NFPA 13 sprinklers throughout (by virtue of being Group R occupancies over 4 stories) and all of the applicable high-rise provisions come into play when a floor is located 75 feet above fire department access.

In order to place 9 stories in 100 feet, both existing Section 510.6 and proposed Section 510.12 rely on a level of compartmentalization formed by the rated walls and floors between units to provide a high level of safety. In this proposal compartmentalization is provided by 2-hr fire resistance rated floors/ceiling assemblies and all bearing walls.

The following Q and A addresses specific questions that came up on the initial proposal that have been addressed in this public comment proposal:

Q1 Why is this proposed in special provisions instead of coming up with a new type of construction?

A By the 2021 code cycle, at least one or two new types of construction that deal with heavy timber elements having a specific fire resistance rating in addition to meeting the required prescriptive size and detailing requirements will be proposed. In the mean time, it is entirely consistent with many of the special provisions found it Section 510 to take an existing type of construction and then add additional fire resistance or detailing. Even Section 510.6, which this change is modeled after, has a first floor construction with a 90 minute rating instead of the one hour rating required for Type IIA.

Q2 There were concerns the 50 foot yard requirement in the original proposal applied only on one side.

A This was never the intent but we can see how some people arrived at that interpretation of the language. The language in this public comment proposal is expanded to make sure it is clear 50 feet minimum is required between the building and other structures, property lines and even the other buildings across the street.

Q3 There were concerns that 2-hr light frame walls using fire retardant-treated wood (FRTW) could be used for exterior bearing walls in the original proposal.

A This public comment proposal has been changed to be clear the bearing elements are required to be 2 hour fire resistance rated heavy timber.

Q4 There were concerns that fire could spread from floor to floor because exterior walls were not required to have gypsum board or sheathing.

A This public comment specifies a minimum 5/8" Type X layer of gypsum sheathing on the outside of exterior walls that are built out of heavy timber. Nonbearing walls could be FRTW lumber or noncombustible in addition to heavy timber.

Q5 There were concerns about non-standard time and temperature curves from residential furnishings that could be a problem for the CLT because of the early onset of high temperatures at the time of flashover.

A Research by Carleton University has looked at various combinations of CLT walls covered with gypsum board. Links to the AWC webpage with links to test results is a the end of this reason statement. The American Wood Council is preparing full scale tests to be completed prior to the Long Beach hearings. Use the following link to view this and other information on our website: http://www.awc.org/Code-Officials/2015-IBC-Code-Changes/

The two hour construction in this public comment proposal is much more robust from a fire standpoint than the one hour rated steel in Section 510.6.

Q6 Do 2 hour stair and shaft enclosures have to be constructed out of CLT?

A No, 2 hour assemblies constructed of other materials may be used. When stairs enclosures are constructed of CLT this proposal calls for a minimum of two layers of 5/8" type X gypsum on both sides. This is highly conservative.

Q7 How are ratings established?

A Like any other structural fire resistance rating found in table 601, the fire resistance rating is established through the various options found in Section 703.2.

Q8 Why is there a minimum amount of gypsum board or gypsum sheathing specified?

A Exposed timber can be calculated up to two hours structural fire resistance without any gypsum board. With the thickness of panels required for a multistory building it is likely many of the walls and floor/ceilings may be able to meet 2 hour fire resistance on their own. The fire service has expressed concerns about the potential contribution of the building structural elements to the fire fuel load. While the maximum height is only 15 feet taller than would be allowed with regular Type IV heavy timber construction, to be conservative a minimum amount of gypsum is specified on all heavy timber interior and exterior walls, and for ceilings. The attachment of this gypsum wall and sheathing board must be per the listing if it is part of a tested assembly, but is also specified in the code text for the minimum layers of gypsum that are required in the case when they are not part of the listing (in the case where the listing for 2-hours does not contain the minimum gypsum specified by this code text).

Q9 How are penetrations handled?

A Penetrations are required to pass the same requirements and tests as all walls of any material in any building when walls serve as a fire walls, fire barriers, fire partitions, or other separations required by the code.

Q10 Is there loading during fire tests?

A There have been a number of fire tests of heavy timber sized elements designed for the required fire resistance rating. Recent tests of SCL beams and CLT walls have also been conducted under various load rations to validate fire models permtted in the IBC 722.1 through reference to the National Design Specification (NDS). In 2013, AWC funded the test of a 10' CLT wall that was loaded with 87,000 pounds. This is comparable to the typical design load for these walls. With the exceptional structural capacity of these immense panels, in most cases, it is impossible in most cases to load tests to maximum capacity, just like large walls constructed of other heavy materials. More important is verifying that the test load is within the range of design (actual) load to be experienced by the building element.

Q How can I find out more about CLT and this code change?

A Paste this web address in your browser to reach a page on the American Wood Council website listing the latest information on testing and references for this and other AWC code change proposals:

http://www.awc.org/Code-Officials/2015-IBC-Code-Changes/

Information pertaining to this code change G 165-15 includes the following web links or information:

1.
    1. AWC CLT Test Report: WP-1950
    2. Other CLT tests
    3. ARUP report on Fire Safety of Tall Wood Buildings
    4. NIST draft white paper: Fire Resistance of Timber Structures, March 31, 2014
    5. Carleton University CLT research papers

G166-15

511.1 (New), 511.2 (New), 511.3 (New), 511.4 (New), *Proposed Change as Submitted*

Proponent : Carl Wren, City of Austin, Texas, representing City of Austin, Texas; Planning and Development Review Department and the Austin Fire Department (carl.wren@austintexas.gov)

2015 International Building Code

Add new text as follows:

SECTION 511—OCCUPIED ROOFS

511.1 General. Buildings with occupied roofs shall comply with this section and with Sections 903.2.1.6 and 1006.3, as applicable.

511.2 Enclosure of occupied roof. Occupied roofs, rooftops, and rooftop decks that are provided with walls or overhead weather protection, whether permanent or temporary, shall be considered a story for the purpose of determining the required construction type for the structure or building, for applying the requirements of Section 403, for applying Chapter 10, and for applying the thresholds for fire safety features required by Sections 903, 905, and 907.

Exceptions:
1. A parapet complying with Section 705.11 and less than 59 inches in height shall not be considered a wall for the purposes of this section.
2. Occupied roofs with temporary weather protection need not be considered a story when compliant with the fire code and approved by the fire code official for specific events conducted for less than 30 days each and the aggregate duration of such events is less than 90 days per 12 month period.

511.3 Fall protection. Occupied roofs and rooftops shall be provided with guards in accordance with Section 1015.

511.4 Interstitial spaces. Where decks or other walking surfaces are constructed above a roof to facilitate rooftop occupancy, the space between the roof/ceiling assembly and the deck or surface shall be constructed in a manner that precludes the accumulation of materials between the roof/ceiling assembly and the deck or walking surface and that prevents the introduction of ignition sources to the space.

Reason: Rooftop occupancies are becoming more and more common and the installation of weather protection is creating new or expanded building areas and occupancies. Some of the issues have been addressed in the 2015 code in section 903.2.1.6 and in section 1006.3, but the issue of increased building heights and added occupancies is more prevalent and more varied than the current code can adequately address.
The exceptions to proposed section 511.2 would allow for flexibility in dealing with unplanned and unexpected circumstances that might cause a truly short term need for weather protection of a roof while still requiring appropriate protection of occupancies that will be ongoing and create internal spaces on rooftops.

Cost Impact: Will increase the cost of construction
The proponent wished to say that the code change would not increase construction costs, but the change really addresses measures and practices being used that actually create additional building area. One cannot necessarily build code compliant walls and ceilings for the same price as setting up tents or membrane structures on the tops of multi-story buildings that would not normally be allowed to include combustible construction. This code change simply acknowledges that these areas need to be treated as enclosed spaces and this will of necessity increase some construction costs.

G166-15 : 511 (New)-WREN5657

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal was the last of a group of proposals trying to address occupied roofs. The committee felt that the introduction of temporary use into this added to the confusion. What the proposal addressed could meet the definition of story and really is no longer an 'occupied roof'. There is no minimum size of the cover which would trigger the requirements. This one, compared to the others did attempt to address fire code issues. There was concern that if this is temporary,that 180 days allowed for temporary uses/structures would be too long a time period. The committee expressed encouragement to the proponents of all the occupied roof proposals to attempt to work together to create a solution for consideation at the public comment hearings.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Carl Wren, City of Austin, Texas, representing Self (carl.wren@austintexas.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

511.1 General ~~Buildings~~ Occupied roofs, rooftops, and rooftop decks that are provided with ~~occupied roofs~~ walls or overhead weather protection shall ~~comply~~ be considered a story. The total number of stories including the enclosed occupied roof shall be applied when:

1. Determining the required construction type for the building,
2. Applying the requirements of section 403,
3. Applying the requirements of Chapter 10, and
4. Applying the thresholds for fire safety features required by Chapter 9.

Exceptions:

1. Where walls, elements, or structures enclosing the occupied roof areas, other than penthouses constructed in accordance with ~~this section~~ Section 1510.2 and towers, domes, spires, or

cupolas constructed in accordance with ~~Sections 903.2.1.6~~ Section 1510.5, do not extend more than 48 inches above the surface of the occupied roof.

2. Penthouses constructed in accordance with Section 1510.2 and ~~1006.3~~ towers, ~~as applicable.~~ domes, spires, or cupolas constructed in accordance with Section 1510.5.

511.2 Enclosure of occupied roof Occupied roofs, rooftops, and rooftop decks that are provided with walls or overhead weather protection, whether permanent or temporary, shall be considered a story for the purpose of determining the required construction type for the structure or building, for applying the requirements of Section 403, for applying Chapter 10, and for applying the thresholds for fire safety features required by Sections 903, 905, and 907.

Exceptions:
1. A parapet complying with Section 705.11 and less than ~~59~~ 5 foot 9 inches in height shall not be considered a wall for the purposes of this section.
2. Occupied roofs with temporary weather protection need not be considered a story where compliant with the fire code and approved by the fire code official for specific events conducted for less than 30 days each and the aggregate duration of such events is less than 90 days per 12 month period.

~~511.4~~ 511.3 Interstitial spaces *No change to text.*

~~511.3 Fall protection~~
~~Occupied roofs and rooftops shall be provided with guards in accordance with Section 1015.~~

Commenter's Reason: The proponent has agreed to joint public comment G24 and will withdraw this public comment if G24 is successful. The number and complexity of requested rooftop occupancies is increasing and there is a need for the code to be more proactive in addressing just what occupancies are acceptable and where they are acceptable. The committee felt that it was unnecessary to introduce temporary uses and this public comment removes the reference to temporary uses as well as the reference to an acceptable time frame for temporary uses.

G166-15

G167-15
TABLE 601

Proposed Change as Submitted

Proponent : Jonathan Humble, American Iron and Steel Institute, representing American Iron and Steel Institute (jhumble@steel.org)

2015 International Building Code

Revise as follows:

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary structural frame[f] (see Section 202)	3[a,] **b**	2[a,] **b**	1 **b**	0	1 **b**	0	HT	1 **b**	0
Bearing walls Exterior[e, f] Interior	3 3[a]	2 2[a]	1 1	0 0	2 1	2 0	2 1/HT	1 1	0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[d]	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction and associated	2	2	1	0	1	0	HT	1	0

secondary members (see Section 202)									
Roof construction and associated secondary members (see Section 202)	$1^{1}/_{2}$[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members**,** roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

f. Not less than the fire-resistance rating as referenced in Section 704.10.

Reason: This proposal has been submitted to address multiple interpretations of Table 601 Footnote "b." We have found that although the code membership has supported the exemption for fire protection of structural members 20 feet or more above any floor immediately below that framing, we have found that other entities are interpreting that the primary structural frame is not included in this exemption. This proposal is designed to address that impact by modifying two aspects of Table 601. The first; to add the reference to footnote "b" to the primary structural frame row of fire resistance requirements, and two; to modify Footnote "b" by adding the phases "in roof construction" and "primary structural frame members" to the current list of items now shown.

Multiple attempts have been made in the past to restrict the original intent, however they have all been disapproved. The most recent was code change G139-12. The code development committee's response stated: "The proposal was disapproved as it is the intent of the footnote to allow all structural members to be unprotected. This proposal would only exempt the secondary members." The committee's disapproval of G139-12 was further upheld by the ICC membership during the Final Action Hearings in Portland, OR, October 2012. The public comment to G139-12 challenging the committee's decision was also disapproved by ICC membership.

Further, the reference of structural members applying to all structural members is further reinforced by the definition of "Primary Structural Frame" in Section 202, where it states in the charging sentence the following: "Primary structural frame.

The primary structural frame shall include all of the following structural members...."

These responses to the proposals, along with reasons by the code development committees, and upheld by the ICC membership, are part of the ICC formal public record and constitute the formal position of the ICC on the issue.

Cost Impact: Will not increase the cost of construction
This proposal clarifies the intent of footnote "b" of the Table.

G167-15 : T601-HUMBLE4725

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: There has been confusion and controversy through the years whether the primary frame was included in the exemption from fire protection as specified in footnote b to Table 601. Interpretations have varied. the committee approved this change because they concluded that it reflects the very original intent of the table and this footnote.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Disapprove.

Commenter's Reason: This proposal adds confusion rather the remove. Where moment frames extend up to a roof assembly over 20 ft high, at what point does the structural element stop being a vertical element and become a structural component of roof?

G167-15

G170-15

602.1, TABLE 601, 602.2, 602.3, TABLE 602.4, 602.4, 602.4.1, 602.4.2, 602.4.3, 602.4.4, 602.4.5, 602.4.6, 602.4.6.1, 602.4.6.2, 602.4.7, 602.4.8, 602.4.8.1, 602.4.8.2, 602.4.9, 602.5, 602.2 (New), 603, 603.1, 603.1.1, 603.1.2, 603.1.3

Proposed Change as Submitted

Proponent : Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

602.1 General. Buildings and structures erected or to be erected, altered or extended in height or area shall be classified ~~in one of the five~~ as Type I, II, III, IV, or V construction ~~types defined in Sections 602.2 through 602.5~~. The building elements shall be constructed of materials as required for the type of construction in accordance with Sections 602.1.1 through 602.1.5 and shall have a *fire-resistance rating* not less than that specified in Table 601 and exterior walls shall have a *fire-resistance rating* not less than that specified in Table 602. Where required to have a *fire-resistance rating* by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required unless required by other provisions of this code.

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary structural frame[f] (see Section 202)	3[a]	2[a]	1	0	1	0	HT	1	0
Bearing walls Exterior[e, f] Interior	3 3[a]	2 2[a]	1 1	0 0	2 1	2 0	2 1/HT	1 1	0 0
Nonbearing									

walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[d]	0	0	0	0	0	0	See Section ~~602.4.6~~ 602.4.1.6	0	0
Floor construction and associated secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Roof construction and associated secondary members (see Section 202)	$1^1/_2$[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

f. Not less than the fire-resistance rating as referenced in Section 704.10.

~~602.2~~ 602.1.2 Types I and II. Types I and II construction are those types of construction in which the building elements listed in Table 601 ~~are~~ shall be

constructed of noncombustible materials~~, except as~~ . Combustible materials are permitted in accordance with Section ~~603~~ 602.2 and elsewhere in this code.

~~602.3~~ 602.1.3 Type III. Type III construction is that type of construction in which the exterior walls ~~are~~ shall be constructed of noncombustible materials and the interior building elements are of any material permitted by this code.~~*Fire-retardant-treated wood* framing complying~~ Combustible materials within exterior walls are permitted in accordance with Section ~~2303.2 shall be permitted within *exterior wall* assemblies of a 2-hour rating or less.~~ 602.2 and elsewhere in this code.

TABLE ~~602.4~~ 602.1.3
WOOD MEMBER SIZE EQUIVALENCIES

MINIMUM NOMINAL SOLID SAWN SIZE		MINIMUM GLUED-LAMINATED NET SIZE		MINIMUM STRUCTURAL COMPOSITE LUMBER NET SIZE	
Width, inch	**Depth, inch**	**Width, inch**	**Depth, inch**	**Width, inch**	**Depth, inch**
8	8	$6\frac{3}{4}$	$8\frac{1}{4}$	7	$7\frac{1}{2}$
6	10	5	$10\frac{1}{2}$	$5\frac{1}{4}$	$9\frac{1}{2}$
6	8	5	$8\frac{1}{4}$	$5\frac{1}{4}$	$7\frac{1}{2}$
6	6	5	6	$5\frac{1}{4}$	$5\frac{1}{2}$
4	6	3	$6\frac{7}{8}$	$3\frac{1}{2}$	$5\frac{1}{2}$

For SI:1 inch = 25.4 mm.

~~602.4~~ 602.1.4 Type IV. Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces. The details of Type IV construction shall comply with the provisions of this section and Section ~~2304.11. Exterior walls complying with Section 602.4.1 or 602.4.2 shall be permitted~~ 2304.10. Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT) in accordance with this section. For gluedlaminated members and structural composite lumber (SCL) members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table~~ 602.4~~.603.1.3.*Cross-laminated timber* (CLT) dimensions used in this section are actual dimensions. Combustible materials in exterior walls are permitted in accordance with Section 602.2 and elsewhere in this code.

~~**602.4.1 Fire-retardant-treated wood in exterior walls.** *Fire-retardant-treated wood* framing complying with Section 2303.2 shall be permitted within exterior wall assemblies with a 2-hour rating or less.~~

~~**602.4.2 Cross-laminated timber in exterior walls.** *Cross-laminated timber* complying with Section 2303.1.4 shall be permitted within exterior wall assemblies with a 2-hour rating or less, provided the exterior surface of the cross-laminated timber is protected by one the following:~~

1. ~~*Fire-retardant-treated wood* sheathing complying with Section 2303.2 and not less than $^{15}/_{32}$-inch (12 mm) thick;~~
2. ~~*Gypsum board* not less than $^{1}/_{2}$-inch (12.7 mm) thick; or~~
3. ~~A noncombustible material.~~

~~**602.4.3**~~ **602.1.4.1 Columns.** Wood columns shall be sawn or glued laminated and shall be not less than 8 inches (203 mm), nominal, in any dimension where supporting floor loads and not less than 6 inches (152 mm) nominal in width and not less than 8 inches (203 mm) nominal in depth where supporting roof and ceiling loads only. Columns shall be continuous or superimposed and connected in an *approved* manner. Protection in accordance with Section 704.2 is not required.

~~**602.4.4**~~ **602.1.4.2 Floor framing.** *No change to text.*

~~**602.4.5**~~ **602.1.4.3 Roof framing.** Wood-frame or glued-laminated arches for roof construction, which spring from the floor line or from grade and do not support floor loads, shall have members not less than 6 inches (152 mm) nominal in width and have not less than 8 inches (203 mm) nominal in depth for the lower half of the height and not less than 6 inches (152 mm) nominal in depth for the upper half. Framed or glued-laminated arches for roof construction that spring from the top of walls or wall abutments, framed timber trusses and other roof framing, which do not support floor loads, shall have members not less than 4 inches (102 mm) nominal in width and not less than 6 inches (152 mm) nominal in depth. Spaced members shall be permitted to be composed of two or more pieces not less than 3 inches (76 mm) nominal in thickness where blocked solidly throughout their intervening spaces or where spaces are tightly closed by a continuous wood cover plate of not less than 2 inches (51 mm) nominal in thickness secured to the underside of the members. Splice plates shall be not less than 3 inches (76 mm) nominal in thickness. Where protected by *approved* automatic sprinklers under the roof deck, framing members shall be not less than 3 inches (76 mm) nominal in width.

~~**602.4.6**~~ **602.1.4.4 Floors.** *No change to text.*

~~**602.4.6.1**~~ **602.1.4.4.1 Sawn or glued-laminated plank floors.** Sawn or glued-laminated plank floors shall be one of the following:

1. Sawn or glued-laminated planks, splined or tongue-and-groove, of not less than 3 inches (76 mm) nominal in thickness covered with 1-inch (25 mm) nominal dimension tongue-and-groove flooring, laid crosswise or diagonally, $^{15}/_{32}$-inch (12 mm) wood structural panel or $^{1}/_{2}$-inch (12.7 mm) particleboard.
2. Planks not less than 4 inches (102 mm) nominal in width set on

edge close together and well spiked and covered with 1-inch (25 mm) nominal dimension flooring or $^{15}/_{32}$-inch (12 mm) wood structural panel or $^{1}/_{2}$-inch (12.7 mm) particleboard.

The lumber shall be laid so that no continuous line of joints will occur except at points of support. Floors shall not extend closer than $^{1}/_{2}$ inch (12.7 mm) to walls. Such $^{1}/_{2}$-inch (12.7 mm) space shall be covered by a molding fastened to the wall and so arranged that it will not obstruct the swelling or shrinkage movements of the floor. Corbelling of masonry walls under the floor shall be permitted to be used in place of molding.

~~**602.4.6.2**~~ **602.1.4.4.2 Cross-laminated timber floors.** *Cross-laminated timber* shall be not less than 4 inches (102 mm) in thickness. *Cross-laminated timber* shall be continuous from support to support and mechanically fastened to one another. *Cross-laminated timber* shall be permitted to be connected to walls without a shrinkage gap providing swelling or shrinking is considered in the design. Corbelling of masonry walls under the floor shall be permitted to be used.

~~**602.4.7**~~ **602.1.4.5 Roofs.** Roofs shall be without concealed spaces and wood roof decks shall be sawn or glued laminated, splined or tongue-and-groove plank, not less than 2 inches (51 mm) nominal in thickness; $1^{1}/_{8}$-inch-thick (32 mm) wood structural panel (exterior glue); planks not less than 3 inches (76 mm) nominal in width, set on edge close together and laid as required for floors; or of cross-laminated timber. Other types of decking shall be permitted to be used if providing equivalent fire resistance and structural properties.

Cross-laminated timber roofs shall be not less than 3 inches (76 mm) nominal in thickness and shall be continuous from support to support and mechanically fastened to one another.

~~**602.4.8 Partitions and walls.** Partitions and walls shall comply with Section 602.4.8.1 or 602.4.8.2.~~

~~**602.4.8.1**~~ **602.1.4.6 Interior walls and partitions.** *No change to text.*

~~**602.4.8.2 Exterior walls.** Exterior walls shall be of one of the following:~~

~~1. Noncombustible materials.~~
~~2. Not less than 6 inches (152 mm) in thickness and constructed of one of the following:~~
~~2.1. *Fire-retardant-treated wood* in accordance with Section 2303.2 and complying with Section 602.4.1.~~
~~2.2. *Cross-laminated timber* complying with Section 602.4.2.~~

~~**602.4.9**~~ **602.1.4.7 Exterior structural members.** *No change to text.*

~~**602.5**~~ **602.1.5 Type V.** Type V construction is that type of construction in which the structural elements, *exterior walls* and interior walls are of any materials permitted by this code.

602.2 Allowable uses of combustible materials. Building elements in Type I and II Construction and within exterior walls in Types III and IV Construction shall be permitted to be constructed of combustible materials

in accordance with the following applications:

1. *Fire-retardant-treated wood* framing complying with Section 2303.2 shall be permitted as follows:

1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less in Types I and II construction.

1.2. Nonbearing *exterior walls* where fire-resistance rated construction is not required in Types I and II construction.

1.3. Roof construction, including girders, trusses, framing and decking in Types I and II construction.

Exception: In buildings of Type IA construction exceeding two *stories* above *grade plane*, *fire-retardant- treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).

1.4 Within exterior wall assemblies for Type III construction where the fireresistance rating of the wall assemblies are 2 hours or less.

1.5 Within exterior wall assemblies for Type IV construction where the fireresistance rating of the wall assemblies are 2 hours or less and the thickness is not less than 6 inches.

2. In Type IV Construction, *Cross-laminated timber* complying with Section 2303.1.4 shall be permitted within exterior wall assemblies with a 2-hour rating or less, provided the exterior surface of the cross-laminated timber is protected by one the following:

2.1. *Fire retardant treated wood* sheathing complying with 2303.2 and not less than 15/32 inch (12 mm) thick;

2.2. *Gypsum board* not less than ½ inch (12.7 mm) thick; or

2.3. A noncombustible material.

3. Millwork such as doors, door frames, window sashes and frames.

4. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.

5. In Types I, II, and III construction partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood*, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.

6. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.

7. Blocking such as for handrails, millwork, cabinets and window and door frames.

8. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.

9. Heavy timber as permitted by Note c to Table 601 and Sections 602.1.4.5 and 1406.3.

10. Aggregates, component materials and admixtures as permitted by Section 703.2.2.

11. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of *fire-resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.13 and 1705.14, respectively.

12. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.

13. Wall construction of freezers and coolers of less than 1000 square

feet (92.9 m2) in floor area, lined on both sides with noncombustible materials and the building is protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

Delete without substitution:

~~SECTION603~~
~~COMBUSTIBLE MATERIAL IN TYPES I AND II CONSTRUCTION~~

~~603.1 Allowable materials. Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:~~

1. ~~*Fire-retardant-treated wood* shall be permitted in:~~
   - ~~1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.~~
   - ~~1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.~~
   - ~~1.3. Roof construction, including girders, trusses, framing and decking.~~

   ~~**Exception:** In buildings of Type IA construction exceeding two *stories abovegrade plane*, *fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).~~
2. ~~Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.~~

   ~~**Exceptions:**~~
   1. ~~Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.~~
   2. ~~Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.~~
3. ~~Foam plastics in accordance with Chapter 26.~~
4. ~~Roof coverings that have an A, B or C classification.~~
5. ~~*Interior floor finish* and floor covering materials installed in accordance with Section 804.~~
6. ~~Millwork such as doors, door frames, window sashes and frames.~~
7. ~~*Interior wall and ceiling finishes* installed in accordance with Sections 801 and 803.~~
8. ~~*Trim* installed in accordance with Section 806.~~
9. ~~Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.~~
10. ~~Finish flooring installed in accordance with Section 805.~~
11. ~~Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood*, 1-hour fire-resistance-rated construction or of wood panels or similar light~~

~~construction up to 6 feet (1829 mm) in height.~~

12. ~~Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.~~
13. ~~Combustible *exterior wallcoverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14.~~
14. ~~Blocking such as for handrails, millwork, cabinets and window and door frames.~~
15. ~~Light-transmitting plastics as permitted by Chapter 26.~~
16. ~~Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.~~
17. ~~Exterior plastic veneer installed in accordance with Section 2605.2.~~
18. ~~Nailing or furring strips as permitted by Section 803.11.~~
19. ~~Heavy timber as permitted by Note c to Table 601 and Sections 602.4.7 and 1406.3.~~
20. ~~Aggregates, component materials and admixtures as permitted by Section 703.2.2.~~
21. ~~Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of *fire resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.14 and 1705.15, respectively.~~
22. ~~Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.~~
23. ~~Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 715.~~
24. ~~Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 718.5.~~
25. ~~Materials exposed within plenums complying with Section 602 of the *International Mechanical Code*.~~
26. ~~Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m^2), in size, lined on both sides with noncombustible materials and the building is protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~

~~**603.1.1 Ducts.** The use of nonmetallic ducts shall be permitted where installed in accordance with the limitations of the *International Mechanical Code*.~~

~~**603.1.2 Piping.** The use of combustible piping materials shall be permitted where installed in accordance with the limitations of the *International Mechanical Code* and the *International Plumbing Code*.~~

~~**603.1.3 Electrical.** The use of electrical wiring methods with combustible insulation, tubing, raceways and related components shall be permitted where installed in accordance with the limitations of this code.~~

Reason: The purpose of this code change proposal is to remove the extraneous, unnecessary information from Chapter 6 that only serves to confuse users of this Code. Section 603 provides an incomplete laundry list of combustible materials that are allowed in Types I and II construction. However, Section 602.2 states that the building elements of buildings of Type I and II construction are required to be noncombustible except as permitted in Section 603, and elsewhere in this code. Of the 29 items listed in Section 603, only 12 of them are materials that could be components of the building elements in Table 601. The remaining materials listed

are also discussed in detail in other parts of the code regarding the limitations of their use in various types of construction. For instance, roof coverings are listed in item no. 4, that have a Class A, B, or C classification. Section 1505 provides in detail where roof coverings of different classifications are required in various types of construction. Why then, is this provision contained in Section 603? Roof coverings are not part of a building element listed in Table 601. Item no. 4 in Section 603.1 tells the user of the code nothing. Are the items in Section 603 the only combustible materials allowed in Types I and II Construction? This is a frequently confused point. For instance, Photovoltaic Rooftop panels and modules are permitted, as stated in Section 1510. But they are not listed in Section 603. Are they therefore only allowed in Types III, IV, and V construction? With this in mind, Section 603 is proposed for deletion, and only the items in Section 603 that can be part of the structural elements in Table 601 are listed in Section 602.2. Cross laminated timber in Type IV Construction (existing Section 602.4.2) has been relocated to the new Section 602.2 as Item 2, with all the other allowable combustible materials for the construction of building elements.

Here are the items that are moved from Section 603 to Section 602.2 (both the existing Item number and the proposed new Item number are provided):

1. Fire-retardant-treated wood. (Item 1)

6. Millwork such as doors, door frames, window sashes and frames. (Item 3)

9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases. (Item 4)

11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a corridor serving an occupant load of 30 or more shall be permitted to be constructed of fire-retardant-treated wood, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height. (Item 5)

12. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively. (Item 6)

14. Blocking, such as for handrails, millwork, cabinets and window and door frames. (Item 7)

16. Mastics and caulking materials applied to provide flexible seals between components of exterior wall construction. (Item 8)

19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.7 and 1406.3. (Item 9)

20. Aggregates, component materials and admixtures as permitted by Section 703.2.2. (Item 10)

21. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of fire-resistance tests in accordance with Section 703.2 and installed in accordance with Sections 1705.13 and 1705.14, respectively. (Item 11)

22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714. (Item 12)

26. Wall construction of freezers and coolers of less than 1000 square feet (92.9 m2), in size, lined on both sides with noncombustible materials and the building is protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. (Item 13)

The remaining items are removed from this Chapter because they do not comprise parts of the elements listed in Table 601 and any limitations on their use in noncombustible construction are provided elsewhere in the code:

2. Thermal and acoustical insulation: See Section 720.
3. Foam plastics: See Section 2603.
4. Roof coverings: See Chapter 15.
5. Interior floor finish and floor coverings: See Section 804.
7. Interior wall and ceiling finishes: See Sections 801 and 803.
8. Trim: See Section 806.

10. Finish flooring: See Section 805.
13. Combustible exterior wall coverings, balconies, and similar projections: See Section 1406.
15. Light-transmitting plastics: See Sections 2606- 2611.
17. Exterior plastic veneer: See Section 2605.2.
18. Nailing or furring strips: See Section 803.11.
23. Materials used to protect joints in fire-resistance rated assemblies: See Section 715.
24. Material in concealed spaces: See Section 718.5
25. Materials exposed within plenums: See Section 602 of the IMC

Cost Impact: Will not increase the cost of construction
The proposal attempts to clarify the code, but does not make any technical changes to code requirements.

G170-15 : 602.4.1-KULIK4886

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee appreciated the effort to reorganize these provisions, but there were concerns that the proposal was incomplete. Testimony indicated that some key provisions were missing. Specifically identified by the committee was the nailing of furring strips are not found in the section suggested by the proponents; and information provided elsewhere does not adequate address foam insulation. There were two proposed modifiecations that would have improved the text of the proposal. The committee was uncomfortable with the reduction of the list currently in Section 603.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: This code change proposal is not a simple re-organization of the code. Rather, this is an important re-focusing of the requirements of Chapter 6. Chapter 6 is intended to describe what the 5 types of construction are, in part by specifying whether structural elements that are listed in Table 601 are required to be noncombustible or otherwise allowed to be combustible. Therefore the issue in Section 603 is to state when those elements in Table 601 are also permitted to be constructed of or contain combustible elements. Section 603 was never intended to be a comprehensive list of combustible materials allowed anywhere in a building.
In its reason statement, the committee stated that the proposal was incomplete; specifically that the reference to nailing or furring strips was not found in the Section suggested, and that foam plastic is not adequately addressed elsewhere. Regarding the nailing or furring strips, the section referenced is exactly the section referenced in the present code—Section 803.11. Regarding foam plastics, this material is comprehensively addressed in Chapter 26, and it is clear where it is allowed to be used. But foam plastic insulation or foam plastic exterior veneer are not part of the building elements addressed in this chapter; therefore the reference in new Section 602.2 is inappropriate.

The committee actually makes our case for us. In the committee reason statement, the committee states that our reason statement makes the wrong code reference for one item that was removed from the list: furring strips. First of all, the reference made comes directly from Section 603, and second, there are a total of 5 references to furring strips in the code. Was the code intended to say that only the furring strips used in the application stated in Section 803.11 be the only application for combustible furring strips in noncombustible construction? The answer, of course, is no.
Section 603 is an incomplete list of combustible materials permitted to be used in Types I and II Construction. As such, it begs the question, "Why are these materials listed here, and not all combustible materials that are permitted in Types I and II Construction?" Section 603 is unnecessary. The code never says that all materials in Type I and II Construction are required to be noncombustible. What the code does say is that the building elements listed in Table 601 are required to be noncombustible, except as permitted in Section 603 of the code and elsewhere. Therefore, we propose that Section 603 be deleted and that a new Section 602.2 that lists only the exceptions to the building elements and exterior walls that are otherwise required to be noncombustible in Section 602.1.

Public Comment 2:

Proponent : Gregory Keith, representing The Boeing Company (grkeith@mac.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

SECTION 602 CONSTRUCTION CLASSIFICATION

602.1 General. Buildings and structures erected or to be erected, altered or extended in height or area shall be classified as Type I, II, III, IV, or V construction. ~~The building~~ Building elements ~~shall be constructed of materials as required for the type of construction in accordance with Sections 602.1.1 through 602.1.5 and~~ shall have a *fire-resistance rating* not less than that specified in Table 601 and shall be constructed of materials as required by Section 602.2 for the applicable type of construction. exterior walls shall have a *fire-resistance rating* not less than that specified in Table 602. Where required to have a *fire-resistance rating* by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required unless required by other provisions of this code.

602.2 Building element construction materials. Building elements listed in Table 601 shall be constructed of materials in accordance with the provisions of this section.

~~**602.1.2**~~ **602.2.1 Types I and II construction.** Building elements in buildings of Types I and II construction ~~are those types of construction in which the building elements listed in Table 601~~ shall be constructed of noncombustible materials~~. Combustible~~ , except that combustible materials are permitted ~~in accordance with Section 602.2~~ to be used as listed below and elsewhere in this code.

1. Fire-retardant-treated wood framing complying with Section 2303.2 shall be permitted as follows:

1.1. Nonbearing partitions where the required fire-resistance rating is 2 hours or less.

1.2. Nonbearing exterior walls where fire-resistance rated construction is not required.

1.3. Roof construction, including girders, trusses, framing and decking.

Exception: In buildings of Type IA construction exceeding two stories above grade plane, fire-retardant- treated wood is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).

2. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a corridor serving an occupant load of 30 or more shall be permitted to be constructed of fire-retardant-treated wood, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.

3. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.

4. Wall construction of freezers and coolers of less than 1000 square feet (92.9 m2), in size, lined on both sides with noncombustible materials where the building is protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

Materials used on or within building elements in buildings of Type I or II construction shall comply with Section 602.3.

~~**602.1.3**~~ **602.2.2 Type III construction.** Exterior walls in buildings of Type III construction ~~is that type of construction in which the exterior walls~~ shall be constructed of ~~noncombustible~~ materials ~~and the interior~~ complying with Section 602.2.1. Materials used on or within exterior walls in buildings of Type III construction shall comply with Section 602.3.

Interior building elements ~~are~~ in buildings of Type III construction shall be of any material permitted by this code. ~~Combustible materials within exterior walls are permitted in accordance with Section 602.2 and elsewhere in this code.~~

~~**602.1.4**~~ **602.2.3 Type IV (Heavy Timber, HT) construction.** Exterior walls in buildings of Type IV construction (Heavy Timber, HT) ~~is that type~~ shall be constructed of ~~construction~~ materials complying with Section 602.2.1. Materials used on or within exterior walls in ~~which~~ buildings of Type IV construction shall comply with Section 602.3.

Exception: Cross-laminated timber complying with Section 2303.1.4 shall be permitted within exterior wall assemblies with a 2-hour rating or less, provided the exterior ~~walls are~~ surface of ~~noncombustible materials~~ the cross-laminated timber is protected by one of the following:

1. Fire retardant treated wood sheathing complying with Section 2303.2 and ~~the interior~~ not less than 15/32-inch (12 mm) thick;

2. Gypsum board not less than 1/2-inch (12.7 mm) thick; or
3. A noncombustible material.

Interior building elements ~~are~~ in buildings of Type IV construction shall be of solid or laminated wood without concealed spaces.

The details of Type IV construction shall comply with the provisions of this section and Section 2304.10. Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT) in accordance with this section. For gluedlaminated members and structural composite lumber (SCL) members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table 602.4. *Cross-laminated timber* (CLT) dimensions used in this section are actual dimensions. Combustible materials in exterior walls are permitted in accordance with Section 602.2 and elsewhere in this code.

~~602.1.4.1~~ 602.2.3.1 Columns. *No change to text.*

~~602.1.4.2~~ 602.2.3.2 Floor framing. *No change to text.*

~~602.1.4.3~~ 602.2.3.3 Roof framing. *No change to text.*

~~602.1.4.4~~ 602.2.3.4 Floors. *No change to text.*

~~602.1.4.4.1~~ 602.2.3.4.1 Sawn or glued-laminated plank floors. *No change to text.*

~~602.1.4.4.2~~ 602.2.3.4.2 Cross-laminated timber floors. *No change to text.*

~~602.1.4.5~~ 602.2.3.5 Roofs. *No change to text.*

~~602.1.4.6~~ 602.2.3.6 Interior walls and partitions. *No change to text.*

~~602.1.4.7~~ 602.2.3.7 Exterior structural members. *No change to text.*

~~602.1.5~~ 602.2.4 Type V construction. All building elements in buildings of Type V construction ~~is that type of construction in which the structural elements, *exterior walls* and interior walls are~~ shall be constructed of any materials permitted by this code.

602.3 Materials used on or within building elements All construction materials used on or within building elements listed in Table 601 for buildings of Type I or II construction and exterior walls in Type III or IV (HT) construction shall be noncombustible, except that combustible materials are permitted to be used as listed below and elsewhere in this code.

1. Blocking such as for handrails, millwork, cabinets and window and door frames.

2. Millwork such as doors, door frames, window sashes and frames.

3. Trim installed in accordance with Section 806.

4. Nailing or furring strips in accordance with Section 803.13.

5. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.

6. Combustible exterior wall coverings, balconies and similar projections and bay or oriel windows in accordance with Chapter 14.

7. Exterior plastic veneer installed in accordance with Section 2605.2.

8. Interior wall and ceiling finishes installed in accordance with Sections 801 and 803.

9. Interior floor finish and floor covering materials installed in accordance with Section 804.

10. Finish flooring installed in accordance with Section 805.

11. Roof coverings that have an A, B or C classification.

12. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.7 and 1406.3.

13. Thermal and acoustical insulation, other than foam plastics, having a flame spread index of not more than 25.

Exceptions:

1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a flame spread index of not more than 100.

2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a flame spread index of not more than 200.

14. Foam plastics in accordance with Chapter 26.

15. Light-transmitting plastics as permitted by Chapter 26.

16. Mastics and caulking materials applied to provide flexible seals between components of exterior wall construction.

17. Aggregates, component materials and admixtures as permitted by Section 703.2.2.

18. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of fire-resistance tests in accordance with Section 703.2 and installed in accordance with Sections 1705.13 and 1705.14.

19. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.

20. Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 715.

21. Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 718.5.

22. Materials exposed within plenums complying with Section 602 of the International Mechanical Code.

~~**602.2 Allowable uses of combustible materials.** Building elements in Type I and II Construction and within exterior walls in Types III and IV Construction shall be permitted to be constructed of combustible materials in accordance with the following applications:~~

~~1. *Fire-retardant-treated wood* framing complying with Section 2303.2 shall be permitted as follows:~~

~~1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less in Types I and II construction.~~

~~1.2. Nonbearing *exterior walls* where fire-resistance rated construction is not required in Types I and II construction.~~

~~1.3. Roof construction, including girders, trusses, framing and decking in Types I and II construction.~~

~~**Exception:** In buildings of Type IA construction exceeding two *stories* above *grade plane*, *fire-retardant- treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).~~

~~1.4 Within exterior wall assemblies for Type III construction where the fireresistance rating of the wall assemblies are 2 hours or less.~~

~~1.5 Within exterior wall assemblies for Type IV construction where the fireresistance rating of the wall assemblies are 2 hours or less and the thickness is not less than 6 inches.~~

~~2. In Type IV Construction, *Cross-laminated timber* complying with Section 2303.1.4 shall be permitted within exterior wall assemblies with a 2-hour rating or less, provided the exterior surface of the cross-laminated timber is protected by one the following:~~

~~2.1. *Fire retardant treated wood* sheathing complying with 2303.2 and not less than 15/32 inch (12 mm) thick;~~

~~2.2. *Gypsum board* not less than ½ inch (12.7 mm) thick; or~~

~~2.3. A noncombustible material.~~

~~3. Millwork such as doors, door frames, window sashes and frames.~~

~~4. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.~~

~~5. In Types I, II, and III construction partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood*, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.~~

~~6. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.~~

~~7. Blocking such as for handrails, millwork, cabinets and window and door frames.~~

~~8. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.~~
~~9. Heavy timber as permitted by Note c to Table 601 and Sections 602.1.4.5 and 1406.3.~~
~~10. Aggregates, component materials and admixtures as permitted by Section 703.2.2.~~
~~11. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of *fire-resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.13 and 1705.14, respectively.~~
~~12. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.~~
~~13. Wall construction of freezers and coolers of less than 1000 square feet (92.9 m2) in floor area, lined on both sides with noncombustible materials and the building is protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.~~

Commenter's Reason: In the General Code Committee's reason statement for disapproval of Item G 170-15, they acknowledged the value of reorganizing Chapter 6 materials requirements. The published statement follows:

"The committee appreciated the effort to reorganize these provisions, but there were concerns that the proposal was incomplete. Testimony indicated that some key provisions were missing. Specifically identified by the committee was the nailing of furring strips are not found in the section suggested by the proponents; and information provided elsewhere does not adequately address foam insulation. There were two proposed modifiecations that would have improved the text of the proposal. The committee was uncomfortable with the reduction of the list currently in Section 603."

G 170-15 was intended to accomplish two ends. First, it was intended to clarify the materials charging language for the various types of construction. Secondly, it attemped to reduce the current Section 603 exceptions to noncombustible construction to those items directly related to the construction of a given building element as opposed to those materials being on or within such building element. As to the first point, the proposal was relatively successful.

Unfortunately, the current Section 603 conditions were treated somewhat arbitrarily. Many code practitioners do not prefer so-called "laundry lists." That said, the exercise is to provide information for code users of all experience levels. To selectively reduce the references to acceptable combustible materials and distribute some to locations "elsewhere in the code," is a disservice. As cumbersome as some may find it, the current 603 list of materials does provide a "one-stop shop" that is familiar to building designers and code enforcement officials alike.

This public comment achieves a middle ground by separating those instances where combusible materials are permitted in the construction of given building elements from those cases where combustible materials may be used on or within building elements. Nevertheless, all former provisions are retained in context. Those instances where combustible materials are permitted in the construction of a given building element are found in context with the construction requirements for the individual types of construction. Within those sections there is a new crossreference to Section 602.3 for a list of permissible materials used on or within building elements. So effectively, the former Section 603 has been subdivided into several smaller lists in technical context.

The reorganization provided in this public comment is consistent with the spirit of G 170-15 as submitted; however, it will provide a much higher degree of functionality and user friendliness. The committee reason statement noted that some oriiginal provisions had been lost. The following provides for the accountablility of former

provisions. It should be noted that the provisions have been reorganized based on their frequency of applicability.

Former Section 603	Public Comment Location
1.)	602.1, Item 1
2.)	602.3, Item 13
3.)	602.3, Item 14
4.)	602.3, Item 11
5.)	602.3, Item 9
6.)	602.3, Item 2
7.)	602.3, Item 8
8.)	602.3, Item 3
9.)	602.3, Item 5
10.)	602.3, Item 10
11.)	602.1, Item 2
12.)	602.1, Item 3
13.)	602.3, Item 6
14.)	602.3, Item 1
15.)	602.3, Item 15
16.)	602.3, Item 16
17.)	602.3, Item 7
18.)	602.3, Item 4
19.)	602.3, Item 12
20.)	602.3, Item 17
21.)	602.3, Item 18
22.)	602.3, Item 19
23.)	602.3, Item 20
24.)	602.3, Item 21
25.)	602.3, Item 22
26.)	602.1, Item 4

Approval of this public comment will greatly assist users in the determination of building element construction requirements based on the applicable type of construction. It retains much of the editorial improvements of G 170-15--especially for Type IV construction--while improving the functionality of the provision based on General Code Committee comments.

Public Comment 3:

Proponent : Stephen Skalko, Stephen V. Skalko, P.E. & Associates, LLC, representing Masonry Alliance for Codes and Standards requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

602.1.3 Type III. Type III construction is that type of construction in which the exterior walls shall be constructed of noncombustible materials and the interior building elements are of any material permitted by this code. Combustible materials within nonbearing exterior wall assemblies with a 2-hour fire resistance rating or less are permitted in accordance with Section 602.2 and elsewhere in this code.

602.1.4 Type IV. Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces. The details of Type IV construction shall comply with the provisions of this section and Section 2304.10. Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT) in accordance with this section. For gluedlaminated members and structural composite lumber (SCL) members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table 602.4. *Cross-laminated timber* (CLT) dimensions used in this section are actual dimensions. Combustible materials in nonbearing exterior ~~walls~~ wall assemblies with a 2-hour fire resistance rating or less are permitted in accordance with Section 602.2 and elsewhere in this code.

602.2 Allowable uses of combustible materials. Building elements in Type I and II Construction and within nonbearing exterior walls in Types III and IV Construction shall be permitted to be constructed of combustible materials in accordance with the following applications:

1. *Fire-retardant-treated wood* framing complying with Section 2303.2 shall be permitted as follows:
    - 1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less in Types I and II construction.
    - 1.2. Nonbearing *exterior walls* where fire-resistance rated construction is not required in Types I and II construction.
    - 1.3. Roof construction, including girders, trusses, framing and decking in Types I and II construction.

        Exception: In buildings of Type IA construction exceeding two *stories* above *grade plane*, *fire-retardant- treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).
    - 1.4 Within nonbearing exterior wall assemblies for Type III construction where the fireresistance rating of the wall assemblies are 2 hours or less.
    - 1.5 Within nonbearing exterior wall assemblies for Type IV construction where the fireresistance rating of the wall assemblies are 2 hours or less and the thickness is not less than 6 inches.
2. In Type IV Construction, *Cross-laminated timber* complying with Section 2303.1.4 shall be permitted within nonbearing exterior wall assemblies with a 2-hour rating or less, provided the exterior surface of the cross-laminated timber is protected by one the following:
    - 2.1. *Fire retardant treated wood* sheathing complying with 2303.2 and not less than 15/32 inch (12 mm) thick;
    - 2.2. *Gypsum board* not less than ½ inch (12.7 mm) thick; or
    - 2.3. A noncombustible material.
3. Millwork such as doors, door frames, window sashes and frames.
4. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.
5. In Types I, II, and III construction partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood*, 1-hour fire-

resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
6. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.
7. Blocking such as for handrails, millwork, cabinets and window and door frames.
8. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.
9. Heavy timber as permitted by Note c to Table 601 and Sections 602.1.4.5 and 1406.3.
10. Aggregates, component materials and admixtures as permitted by Section 703.2.2.
11. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of *fire-resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.13 and 1705.14, respectively.
12. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.
13. Wall construction of freezers and coolers of less than 1000 square feet (92.9 m2) in floor area, lined on both sides with noncombustible materials and the building is protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

Commenter's Reason: Overall the proposed changes to Chapter 6 by the Building Code Action Committee do offer clarification on application of the Types of construction and the use of combustible materials. However, the proposal needs additional revisions to further clarify the intent of the code for the use of combustible materials in exterior walls of Types III and IV construction. Both new Section 602.1.3 for Type III construction (former 602.3) and new Section 602.1.4 for Type IV construction (former 602.4) specify that exterior walls shall be of noncombustible materials. Though not explicit it is implied by the language for Type III construction and Type IV construction that fire retardant treated wood and cross-laminated lumber, which are combustible materials, are permitted to be used "within" the exterior wall assembly provided the wall assembly has a fire resistance of 2-hours or less. This term "within" indicates the combustible materials are permitted for use as a component in the exterior wall but the structural exterior wall (i.e. load-bearing wall) is still required to be noncombustible.

Historically building construction types in older building codes and the previous legacy codes were described based on noncombustible and/or combustible materials utilized in the building structural elements. The construction types ranged from buildings with no combustible structural framing, to those with noncombustible exterior walls and some combustible structural framing on the interior of the building, to buildings where the majority of the structural farming was combustible. This concept of describing the building construction type based on these combinations of noncombustible and/or combustible materials is reflected in the types of construction found in the International Building Code as follows:

- Types I and II use mostly noncombustible materials.
- Types III and IV construction have exterior walls are of noncombustible materials but allow interior framing wholly or partly of combustible materials. Type III construction has interior framing of nominal light frame wood members. Type IV construction has interior wood members of a size to be classified as heavy timber.
- Type V construction permits structural elements, including bearing exterior walls, to be of any material permitted by the code such as nominal light frame wood members.

This change will make clear that the fire retardant treated wood and cross-laminated lumber are permitted within the exterior walls in Types III and IV construction but the loadbearing portions of the exterior wall must be noncombustible. Further, this modification coordinates with Section 603.1, Item 1.2 where FRTW for Types I and II construction is permitted in non-bearing exterior walls.

Recommend APPROVAL AS MODIFIED for G170-15.

G170-15

G171-15

602.1, 602.1.1, 602.1.1.1 (New)

Proposed Change as Submitted

Proponent : Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

602.1 General. Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in Sections 602.2 through 602.5. ~~The building elements shall have a *fire-resistance rating* not less than that specified in Table 601 and exterior walls shall have a *fire-resistance rating* not less than that specified in Table 602. Where required to have a *fire-resistance rating* by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required unless required by other provisions of this code.~~

602.1.1 ~~**Minimum requirements.**~~ **Fire-resistance ratings** ~~A~~ The building ~~or portion thereof~~ elements shall have a *fire-resistance rating* not less than that specified in Table 601 and exterior walls shall have a *fire-resistance rating* not less than that specified in Table 602. Where required to have a fire resistance rating by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required ~~to conform to the details~~ unless required by other provisions of ~~a type of construction higher than that type which meets the minimum requirements based on occupancy even though certain features of such a building actually conform to a higher type of construction.~~ this code.

Add new text as follows:

602.1.1.1 Buildings in high risk areas. In Table 601 the building elements in multi-story buildings of construction Types IIB, IIIB and VB in Risk Categories III and IV identified in Table 1604.5 shall have a *fire-resistance rating* of not less than 1 hour where such buildings are any of the following:

1. Assigned to Seismic Design Category C or D in Table 1613.3.5(1).
2. Located in a flood hazard area established in accordance with Section 1612.3.
3. Located in a hurricane-prone region.

Reason: As hazard events, both naturally-occurring and man-made, are increasing in number and severity in the United States and around the world, the resilience of communities and the individual buildings within those communities is becoming of vital importance.
A National Institute of Building Sciences Publication (May, 2014) entitled "Moving Forward: Findings and Recommendations", states that "while a long history of building codes has laid the foundation for addressing the impacts of natural and man-made hazards, changes in the frequency and severity of events have brought new challenges — challenges requiring the engagement and support of

policymakers. While building codes serve as the minimum requirements for life-safety in the building stock, basic life-safety protections do not fully address building performance requirements to achieve resilience."

Mitigation includes, among other things, fortifying buildings so that they are less likely to be severely damaged or completely destroyed during or immediately after a disaster. It is the key to recovery after a disaster. Mitigation allows individuals and communities to lessen post-disaster disruption and rebuild more quickly. States and cities have started implementing more stringent requirements in specific geographic areas they have designated as higher-risk. The purpose of this series of code changes proposed by Fire Safe North America is to encourage the debate in the code development process to identify what constitutes resilient buildings, and begin to identify issues that will become the basis for "new minimum requirements" for increased building resiliency.

Responding to the challenge of mitigating damage and resilient buildings is an admittedly complex topic. Fire Safe North America proposals are intended to reduce the total reliance of a community and its firefighters on automatic sprinkler systems in disaster-prone areas of the country where the water supply and/or power are likely to be interrupted, or are likely to have water supply system operational issues. The proposals, if approved, will fortify the building code requirements for the most vulnerable buildings to fire - Type IIB, IIIB, and VB construction, which are also classified as Risk Category III and IV in Table 1604.5, and in high-risk, disaster prone regions. The proposals modify the following code requirements in such buildings:

1. Reduce allowable area limits
2. Protect the path of egress by limiting travel distances
3. Protect the path of egress by protecting corridors
4. Require higher fire resistance ratings for occupancy separations
5. Require higher fire resistance ratings for building elements

These proposals are intended to be conservative so as to promote community resiliency and disaster mitigation by protecting essential buildings with both sprinkler protection AND fire resistance rated compartmentation. These proposals may be fairly considered to be the proverbial "belt-and suspenders" approach, requiring both sprinkler protection and increased fire resistance rated compartmentation in specific buildings in high risk areas for disasters.

Historically, the code has been written using the general assumption that automatic sprinklers will operate satisfactorily and there will be suitable power for such building operations. Code users design and build assuming that firefighters will be able to respond at their normal efficiencies. In some parts of the country, buildings impacted by disasters may remain without reliable water and/or power for a considerable period of time, well after the occurrence of the disaster. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself. Total reliance on an uninterrupted power and water supply may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

For example, more than 15% of the U.S. population lives in potential major earthquake areas. 41 states and territories have moderate to high risk. There is a real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also building-to-building fire spread. In October 17, 1989, a 7.1 earthquake in Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. On January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes. 85 spread to adjacent buildings and 10 approached or reached conflagration status. 1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone.

In 1997, the Red River flooded Grand Forks, North Dakota, causing $3.7 billion in

flood losses, and displaced thousands of families and businesses. Similar data of increased fire incidents are available in other flood and hurricane-prone areas.

Undoubtedly, this will increase the cost of construction in these specific buildings. However, a recent FEMA's 2010 report "Mitigation's Value to Society" statement described how mitigation is an investment that needs to be made. A recent study by the NIBS Multihazard Mitigation Council (MMC) identified that each dollar spent on mitigation saves an average of $4.00 in disaster recovery.

Links:
http://www.dhses.ny.gov/oem/mitigation/documents/mitigations-value-to-society.pdf

The two-volume NIBS MMC study report is available for free download at:
http://www.nibs.org/index.php/mmc/projects/nhms

Cost Impact: Will increase the cost of construction
This change increases the fire ratings of structural elements of essential buildings to the fire ratings specified for non-sprinklered buildings, and the increased cost will be consistent with the costs for non sprinklered buildings. The increased costs are only proposed for limited geographic areas.

G171-15 : 602.1-LOVELL5283

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Items G140-15, G152-15 and G171-15 were considered together. The committee disapproved all three. They were unconvinced by the proponents reason statement that these changes are the way to address buildings in higher rish areas. The committee felt that the impact of this proposal would be to essential ban non-rated construction.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

602.1 General. Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in Sections 602.2 through 602.5.– The building elements shall have a *fire-resistance rating* of not less than that specified in Table 601 and exterior walls shall have a *fire-resistance rating* of not less than that specified in Table 602, except where limited by Section 602.1.2. Where required to have a *fire-resistance rating* by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required unless required by other provisions of this code.

602.1.1 Fire-resistance ratings The building elements shall have a *fire-resistance rating* not less than that specified in Table 601 and exterior walls shall have a *fire-resistance rating of* not less than that specified in Table 602. Where required to have a fire resistance rating by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required unless required by other provisions of this code.

602.1.2 Building elements in disaster-prone areas. The building elements in multi-story, sprinklered buidings of construction Types IIB, IIIB and VB assigned to Risk Category IV identified in Table 1604.5 shall have a *fire-resistance rating* of not less than 1 hour where such buildings are any of the following:

1. Assigned to Seismic Design Category D or F in accordance with Section 1613.3.5.
2. Located in a *special flood hazard area* established in accordance with Section 1612.3.
3. Located in the *windborne-debris region* based on Figure 1609.3(2).

Exception: Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, that are provided with a secondary water supply in accordance with Section 403.3.3, and where fire pumps are protected against interruption of service in accordance with Section 913.

Commenter's Reason: The increased fire resistivity required by this proposal is intended to apply ONLY to buildings that are ALL of the following:

- Classified in the highest risk category.
- Located in the highest risk, disaster-prone regions for floods, hurricanes and seismic activity.
- Type IIB, IIIB or VB construction.

It excludes sprinklered buildings that have emergency backup systems for water and power in those regions.

Although the cause is debated, naturally-occurring and man-made disasters are increasing in number and severity in the United States and around the world. That fact is undisputed. The resilience of communities and the individual buildings within those communities is becoming of vital importance.

A National Institute of Building Sciences Publication (May, 2014) entitled "Moving Forward: Findings and Recommendations", states that "while a long history of building codes has laid the foundation for addressing the impacts of natural and man-made hazards, changes in the frequency and severity of events have brought new challenges — challenges requiring the engagement and support of policymakers. While building codes serve as the minimum requirements for life-safety in the building stock, basic life-safety protections do not fully address building performance requirements to achieve resilience."

Mitigation includes, among other things, fortifying buildings so that they are less likely to be severely damaged or completely destroyed during or immediately after a disaster. It is the key to recovery after a disaster. Mitigation allows individuals and communities to lessen post-disaster disruption and rebuild more quickly. States and cities have started implementing more stringent requirements in specific geographic areas they have designated as higher-risk.

The purpose of this series of code changes proposed by Fire Safe North America is to encourage the debate in the code development process to identify what constitutes resilient buildings, and begin to identify issues that will become the basis

for "new minimum requirements" for increased building resiliency.

Responding to the challenge of mitigating damage and resilient buildings is an admittedly complex topic. Fire Safe North America proposals are intended to reduce the total reliance of a community and its firefighters on automatic sprinkler systems in disaster-prone areas of the country where the water supply and/or power are likely to be interrupted, or are likely to have water supply system operational issues. The proposals, if approved, will fortify the building code requirements for the most vulnerable buildings to fire - Type IIB, IIIB, and VB construction, which are also classified as Risk Category IV in Table 1604.5, and in high-risk, disaster prone regions. The proposals modify the following code requirements in such buildings:

1. Reduce allowable area limits.
2. Protect the path of egress by limiting travel distances.
3. Protect the path of egress by protecting corridors.
4. Require higher fire resistance ratings for occupancy separations.
5. Require higher fire resistance ratings for building elements.

These proposals are intended to be conservative so as to promote community resiliency and disaster mitigation by protecting essential buildings with both sprinkler protection AND fire resistance rated compartmentation. These proposals may be fairly considered to be the proverbial "belt and suspenders" approach, requiring both sprinkler protection and increased fire resistance rated compartmentation in specific buildings in high risk areas for disasters.

Historically, the code has been written using the general assumption that automatic sprinklers will operate satisfactorily and there will be suitable power for such building operations. Code users design and build assuming that firefighters will be able to respond at their normal efficiencies. In some parts of the country, buildings impacted by disasters may remain without reliable water and/or power for a considerable period of time, well after the occurrence of the disaster. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself. Total reliance on an uninterrupted power and water supply may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

For example, more than 15% of the U.S. population lives in potential major earthquake areas. 41 states and territories have moderate to high risk. There is a real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also building-to-building fire spread. On October 17, 1989, a 7.1 earthquake in Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. On January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes. 85 spread to adjacent buildings and 10 approached or reached conflagration status. 1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone.

In 1997, the Red River flooded Grand Forks, North Dakota, causing $3.7 billion in flood losses, and displaced thousands of families and businesses. Similar data of increased fire incidents are available in other flood and hurricane-prone areas.

Undoubtedly, this will increase the cost of construction in these specific buildings. However, a recent FEMA's 2010 report "Mitigation's Value to Society" statement described how mitigation is an investment that needs to be made. A recent study by the NIBS Multihazard Mitigation Council (MMC) identified that each dollar spent on mitigation saves an average of $4.00 in disaster recovery.

Links:

http://www.dhses.ny.gov/oem/mitigation/documents/mitigations-value-to-society.pdf

The two-volume NIBS MMC study report is available for free download at:

http://www.nibs.org/index.php/mmc/projects/nhms

Cost Impact: Will increase the cost of construction

This code change proposal will increase the cost of construction of some building types.

G171-15

G172-15
602.3

Proposed Change as Submitted

Proponent : David Tyree, representing American Wood Council (dtyree@awc.org)

2015 International Building Code

Revise as follows:

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. *Fire-retardant-treated wood* framing complying with Section 2303.2 shall be permitted within *exterior wall* assemblies of a 2-hour rating or less. Exterior walls complying with Section 602.4.2 or 602.4.8.2 shall be permitted.

Reason: Prior to the 2015 IBC, the requirements for exterior walls in Types III and IV construction were identical. They both permitted exterior walls to be of noncombustible material or to be of FRTW. The 2015 IBC now allows Cross-laminated timber, CLT, to also be used in those walls. The CLT is considered heavy timber in the 2015 IBC. So now, the Type III wall does not permit the three options of the Type IV wall. The 2015 code change created a difference that never existed and has no technical reason to continue to exist.

The exterior wall requirement for Type IV CLT walls are at least equivalent to what is currently required for FRTW exterior walls in Type III. This proposal will provide the same protection in Type III as is provided by exterior walls in Type IV construction. For a complete list of AWC code change proposals and additional information please go to http://www.awc.org/Code-Officials/2015-IBC-Code-Changes. For more information concerning CLT lumber and construction, please go to http://www.rethinkwood.com/tall-wood-survey.

Cost Impact: Will not increase the cost of construction
There is no increase in cost with this proposal as it just revises the protection requirements for Type II and Type IV construction identical.

G172-15 : 602.3-TYREE4675

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee was uncomfortable that the research does show equivalency between walls of non-combustible materials and the wood products and engineered wood products that would be allowed by this change. These are not non-combustible materials.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Tyree, American Wood Council, representing American Wood Council requests Approve as Submitted.

Commenter's Reason: This proposal is intended to make the exterior wall requirements for Type III and IV construction consistent as they have been since the publication of the 2000 IBC. With the inclusion of CLT in the 2015 IBC for exterior walls in Type IV construction, this created a difference. The allowance of CLT in the exterior walls will not only assure that the wall has a 2 hour rating, but also will require the exterior surface of the wall to be provided with a layer of 15/32" FRTW, 1/2" gypsum board or a noncombustible material. Exterior walls in Type III construction are required to have a two hour rating and whether or not the wall is non-combustible the wall itself still has the same two hour rating and serves the same purpose. Fire resistance is typically associated with an assembly construction, and therefore considers the performance of the combination of materials which can be combustible or non-combustible. A non-combustible 2 hour wall assembly provides the same fire resistance as a two hour combustible wall assembly. While non-combustible walls may not ignite and support combustion they do react to heat in a manner that could affect the structural stability. When steel is subjected to heat is expands significantly which can either push the wall in or out, or if it is confined it can twist and turn, with the possibility of structural member failure. When steel reaches a temperature of 1000 degrees F, steel loses about fifty percent of its load carrying capacity which is completely contrary to the behavior of mass timber construction in a fire situation. When concrete is subjected to heat there is an issue with possible spalling which is the explosive ejection of chunks of concrete from the surface which is due to the breakdown in the surface tensile strength.
The point here is all materials have there own separate issues when subjected to fire. The exterior wall performance should be based on "performance" not whether the wall is combustible or non-combustible.

G172-15

G173-15
602.3

Proposed Change as Submitted

Proponent : Joseph Holland, representing Hoover Treated Wood Products (jholland@frtw.com)

2015 International Building Code

Revise as follows:

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. *Fire-retardant-treated wood* ~~framing~~ _complying with Section 2303.2 shall be permitted within *exterior wall* assemblies of a 2-hour rating or less.

Reason: The term "framing" is not needed to understand the FRTW is permitted "within the exterior wall assemblies."

Cost Impact: Will not increase the cost of construction
There is no change in the requirements. It is only for clarification.

G173-15 : 602.3-HOLLAND4215

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal creates confusion because it would allow fire retardant treated wood in the exterior wall regardless of how it is used and not limited to specified structural elements. The committee preferred the solution provided by G175-15.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Joseph Holland, Holland Treated Wood Products, representing Hoover Treated Wood Products (jholland@frtw.com) requests Approve as Submitted.

Commenter's Reason: The purpose of the change to correct the impression that only studs can be FRTW in the exterior walls of Type III construction.
Fire-retardant-treated wood has been recognized for use in Type III stuctures for more than 50 years. During that time it has been used in the interior of the exterior walls. Recently, interpretatons have resulted in the FRTW being allowed only for the studs because of the use of the term "framing". The meaning of the section is contained in the phrase "within exterior wall assemblies". Material within the wall

whether framing, backing, blocking or sheathing is permitted.
Approval will clarify what has been done for many years.

G173-15

G174-15
602.4.1

Proposed Change as Submitted

Proponent : Joseph Holland, representing Hoover Treated Wood products (jholland@frtw.com)

2015 International Building Code

Revise as follows:

602.4.1 Fire-retardant-treated wood in exterior walls. *Fire-retardant-treated wood* ~~framing~~ complying with Section 2303.2 shall be permitted within exterior wall assemblies with a 2-hour rating or less.

Reason: The term "framing" is not needed to understand the FRTW is permitted "within the exterior wall assemblies."

Cost Impact: Will not increase the cost of construction
This is a clarification no change in construction costs.

G174-15 : 602.4.1-HOLLAND4444

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee disapproved this item consistent with its disapproval of G173-15. G175-15 was the preferred solution to the issue.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Joseph Holland, Hoover Treated Wood Products, representing Hoover Treated Wood Products (jholland@frtw.com) requests Approve as Submitted.

Commenter's Reason: The purpose of the change to correct the impression that only studs can be FRTW in the exterior walls of Type IV construction.
Fire-retardant-treated wood has been recognized for use in Type IV stuctures for more than 50 years. During that time it has been used in the interior of the exterior walls. Recently, interpretatons have resulted in the FRTW being allowed only for the studs because of the use of the term "framing". The meaning of the section is contained in the phrase "within exterior wall assemblies". Material within the wall whether framing, backing, blocking or sheathing is permitted.

Approval will clarify what has been done for many years.

G174-15

G175-15

602.3, 602.4.1

Proposed Change as Submitted

Proponent : Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. *Fire-retardant-treated wood* framing and sheathing complying with Section 2303.2 shall be permitted within *exterior wall* assemblies of a 2-hour rating or less.

602.4.1 Fire-retardant-treated wood in exterior walls. *Fire-retardant-treated wood* framing and sheathing complying with Section 2303.2 shall be permitted within exterior wall assemblies with a 2-hour rating or less.

Reason: The word framing creates some confusion. some have interpreted that framing does not include the sheathing utilized for lateral resistance to be framing. This has resulted in at least one interpretation that the walls cannot have FRT structural wood panel framing and yet another interpretation that the structural wood panel is permitted to be installed but unlike the studs does not need to be FRT. ASCE considers sheathing to be part of the framing system. The ICC ES has AQ for a product equivalent to FRT plywood for use on Type III construction.

The addition of sheathing clarifies wood framing and sheathing is permitted to be within the assembly if FRT.

Cost Impact: Will not increase the cost of construction
This code change does not create a new requirement. It clarifies existing code language to prevent misinterpretation of the code.

G175-15 : 602.3-MAIEL4965

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: This solution was preferred over that proposed in G173 and G174-15. The revised text is very clear and avoids the potential confusion that FRTW could be installed in these walls for other purposes.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Stephen Skalko, Stephen V. Skalko, P.E. &

Associates, LLC, representing Masonry Alliance for Codes and Standards requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. *Fire-retardant-treated wood* framing and sheathing complying with Section 2303.2 shall be permitted within nonbearing *exterior wall* assemblies of a 2-hour rating or less.

602.4.1 Fire-retardant-treated wood in exterior walls. *Fire-retardant-treated wood* framing and sheathing complying with Section 2303.2 shall be permitted within nonbearing exterior wall assemblies with a 2-hour rating or less.

Commenter's Reason: The intent of this modification is to clarify that when FRTW framing and sheathing are used "within" an exterior wall assembly with a fire resistance rating of 2-hours or less that the portion of the wall where they are used shall be non-loadbearing. Historically building construction types in older building codes and the previous legacy codes were described based on noncombustible and/or combustible materials utilized in the building structural elements such as bearing walls, columns, beams, and floor and roofs. The construction types ranged from buildings with no combustible structural framing, to those with noncombustible exterior walls and some combustible structural framing on the interior of the building, to buildings where the majority of the structural farming was combustible. This concept of describing the building construction type based on these combinations of noncombustible and/or combustible materials is reflected in the types of construction found in Section 602 of the International Building Code and can be summarized as follows:

- Types I and II construction use mostly noncombustible materials.
- Types III and IV construction have exterior walls are of noncombustible materials but allow interior framing wholly or partly of combustible materials. Type III construction has interior framing of nominal light frame wood members. Type IV construction has interior wood members of a size to be classified as heavy timber.
- Type V construction permits structural elements, including bearing exterior walls, to be of any material permitted by the code such as nominal light frame wood members.

Both Section 602.3 for Type III construction and Section 602.4 for Type IV construction specify that exterior walls shall be of noncombustible materials. Though not explicit it is implied by the language for Type III construction and Type IV construction that fire retardant treated wood and cross-laminated lumber, which are combustible materials, are permitted to be used "within" the exterior wall assembly provided the wall assembly has a fire resistance of 2-hours or less. This term "within" indicates the combustible materials are permitted for use as a component in the exterior wall but the structural exterior wall (i.e. load-bearing wall) is still required to be noncombustible. This is further evident by Section 603.1, Item 1.2 which permits nonbearing portions of exterior walls in Type I and II construction to have where FRTW. Types I and II construction, like Types III and IV construction, also require bearing exterior walls to be noncombustible.

This modification clarifies the code and makes the code consistent with the use of FRTW in Types I, II, III and IV construction for the nonload-bearing portions of exterior walls.

Recommend Approval as Modified for G175-15.

G176-15

602.3, 602.4, 602.4.8

Proposed Change as Submitted

Proponent : Stephen Skalko, representing Masonry Alliance for Codes and Standards (svskalko@cox.net)

2015 International Building Code

Revise as follows:

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. Non-bearing ~~Fire-retardant-treated f~~ ire-retardant-treated *wood* framing complying with Section 2303.2 shall be permitted within *exterior wall* assemblies of a 2-hour rating or less.

602.4 Type IV. Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces. The details of Type IV construction shall comply with the provisions of this section and Section ~~2304.11.~~ 2304.11.Non-bearing portions of Exterior walls complying with Section 602.4.1 or 602.4.2 shall be permitted. Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT). For gluedlaminated members and structural composite lumber (SCL) members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table 602.4. *Cross-laminated timber* (CLT) dimensions used in this section are actual dimensions.

602.4.8 ~~Partitions~~ Nonbearing partitions and walls. ~~Partitions~~ Nonbearing partitions and walls shall comply with Section 602.4.8.1 or 602.4.8.2.

Reason: Changes to the building code that allow the use of fire retardant treated wood for Types III and IV construction and cross-laminated lumber for Type IV construction have reduced the clarity in the code that these two types of construction are required to have the exterior load-bearing portions of the structure to be noncombustible materials. This is evident by the requirements in the first sentence to both 602.3 Type III and 602.4 Type IV specifying exterior walls to be noncombustible materials. It is implied, but not as clear, by the language in the last sentence of 602.3 for Type III construction and in 602.4.1 and 602.4.2 of Type IV construction, where fire retardant treated wood and cross-laminated lumber are permitted to be used "within" the exterior wall. This term "within" indicates the combustible materials are permitted for use as a component in the exterior wall but the structural exterior wall is still required to be noncombustible.

Historically building construction types in older building codes and the previous legacy codes were described based on noncombustible and/or combustible materials utilized in the building structural elements. The construction types ranged from buildings with no combustible structural framing, to those with noncombustible exterior walls and some combustible structural framing on the interior of the building, to buildings where the majority of the structural farming was combustible. This concept of describing the building construction type based on these

combinations of noncombustible and/or combustible materials is reflected in the types of construction found in the International Building Code.

Types I and II reflect the construction type where noncombustible materials are utilized. Types III and IV construction comprise construction types where the exterior walls are of noncombustible materials and the interior framing is wholly or partly of combustible materials. In the case of Type III construction the interior framing members may be nominal light frame wood members. For Type IV construction the interior wood members are expected to be of such size to be classified as heavy timber. Finally Type V construction in the code would be a building where structural elements, including bearing exterior walls are of combustible members such as nominal light frame wood members.

Further, this proposal coordinates with Section 603.1 where it currently outlines the limitations on the use of FRTW for Types I and II construction which are also based on exterior load-bearing portions of the structure being noncombustible materials. In subpart #1 of 603.1 it states the following:

"1. Fire-retardant-treated wood shall be permitted in:

1.1 Nonbearing partitions where the required fire-resistance rating is 2 hours or less.

1.2 Nonbearing exterior walls where fire-resistance-rated construction is not required...."

This change will make clear that the bearing portion of the exterior walls in Types III and IV construction must be noncombustible to qualify for that type of construction.

Cost Impact: Will not increase the cost of construction
There is no cost impact from this change. It only clarifies the intent of the existing code.

G176-15 : 602.3-SKALKO5513

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The intent when FRTW was brought into the code was to allow both exterior wall and interior applications. If there was a problem with FRTW in these locations, the fire services would be raising the red flags. The committee was not presented with any data that indicates that the use of FRTW in these locations was causing problems.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Approve as Submitted.

Commenter's Reason: There appears to be a misinterpretation in the commentary to the IBC, that permits FRTW to be considered non-combustible. FRTW is not non-combustible but only fire retardant. Jurisdictions like the State of New Jersey have addressed this type of misinterpretation by appropriately amending the code. The proposal as submitted corrects that misinterpretation in the commentary. "Non-combustible" is clearly intended to mean non-combustible regardless of the construction type. There has been no documentation that fire retardant wood provides comparible performance to non-combustible construction, thus as with type I and II construction FRTW framing should remain limited to non-structural elements of exterior walls in Type III construction. Deviating from this is the same as increasing heights and areas in Type V construction.

Public Comment 2:

Proponent : Stephen Skalko, Stephen V. Skalko, P.E. & Associates, LLC, representing Masonry Alliance for Codes and Standards requests Approve as Submitted.

Commenter's Reason: The General Code Committee missed the point of this proposed code change. Our intent is not to prohibit the use of FRTW in exterior or interior wall applications in Types III or IV construction. The intent of the code change is to clarify that when used "within" an exterior wall assembly with a fire resistance rating of 2-hours or less that the FRTW is used only for non-loadbearing purposes.

As pointed out previously in the reasoning statement, historically building construction types in older building codes and the previous legacy codes were described based on noncombustible and/or combustible materials utilized in the building structural elements. The construction types ranged from buildings with no combustible structural framing, to those with noncombustible exterior walls and some combustible structural framing on the interior of the building, to buildings where the majority of the structural farming was combustible. This concept of describing the building construction type based on these combinations of noncombustible and/or combustible materials is reflected in the types of construction found in the International Building Code as follows:

- Types I and II use structural elements mostly of noncombustible materials.
- Types III and IV construction have exterior walls are of noncombustible materials but allow interior framing wholly or partly of combustible materials. Type III construction has interior framing of nominal light frame wood members. Type IV construction has interior wood members of a size to be classified as heavy timber.
- Type V construction permits structural elements, including bearing exterior walls, to be of any material permitted by the code such as nominal light frame wood members.

FRTW does not qualify for a noncombustible material. However, though the code requires exterior walls of Types III and IV construction to be noncombustible, it permits FRTW "within" the noncombustible exterior walls for nonbearing purposes. This modification is consistent with Section 603.1, Item 1.2 of the code, where FRTW for Types I and II construction is permitted in nonbearing exterior walls. If FRTW framing is used as a structural element for loadbearing purposes then the building construction type becomes Type V construction per IBC Section 602.5.

Recommend APPROVAL AS SUBMITTED for G176-15.

G177-15
602.3

Proposed Change as Submitted

Proponent : Carl Wren, City of Austin, Texas, representing City of Austin, Texas; Planning and Development Review Department and the Austin Fire Department (carl.wren@austintexas.gov)

2015 International Building Code

Revise as follows:

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. *Fire-retardant-treated wood* framing complying with Section 2303.2 shall be permitted where enclosed within *exterior wall* assemblies of a 2-hour rating or less. The required fire resistance shall be maintained and the exposed inner and outer faces of such exterior walls shall be noncombustible.

Reason: This jurisdiction has become aware of a lot of confusion as to what is required for the construction of a Type III exterior wall when the framing is fire retardant treated wood (FRTW). Some applicants have believed that the exterior wall could have FRTW plywood or OSB sheathing as the "noncombustible" exterior of the wall or that field applied ignition resistant coatings made wood sheathing noncombustible. Construction has been proposed where the FRTW plywood/OSB was to be applied directly to the FRTW framing and combustible siding installed on the exterior. These design approaches would potentially result in buildings up to 6 stories tall above the grade plane and as tall as 75-85 feet above the grade plane, without noncombustible and required fire resistive protection of the load bearing wall framing. These conditions are clearly contrary to the historical context of Type III wall construction and are at odds with the UBC source provision in section 503.4.3 of the 1997 UBC.

Bibliography: Uniform Building Code, International Conference of Buidling Officials/International Code Council, 1997 Edition, Seection 503.4.3, Page 1-51

Cost Impact: Will not increase the cost of construction
The proponent is proposing that the code change is a clarification and not a new requirement and therefore should not result in increased costs for code compliant construciton.

G177-15 : 602.3-WREN5049

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee understood that one of the legacy codes included text which accomplished the intent of this change. Building materials have evolved and the regulations have evolved, the committee didn't see the need to resurrect a 20 year old provision. The exterior 'noncombustible' material isn't specified. If a wall has been tested 2-hour assembly with FRTW, why isn't that assembly acceptable.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Carl Wren, representing City of Austin, Texas (carl.wren@austintexas.gov) requests Approve as Submitted.

Commenter's Reason: The committee noted that building materials have evolved and the proponent certainly agrees that there are many improvements. However, this proponent has seen numerous projects for which the designer submitted FRTW sheathing as the "noncombustible" exterior for the wall. While this material is good at resisting ignition, it is not noncombustible. The committee also noted the following: "If a wall has been tested 2-hour assembly with FRTW, why isn't that assembly acceptable." The proponent has seen numerous submittals from design professionals that are tested from only the inside and are not listed for exterior exposure. Given that there have been numerous fires around the country that originated outside the building but on the same property as the Type III buidling, not in an adjoining property, it seems wise to clearly identify that noncombustible exterior surfaces are required and that fire resistance is required to be maintained. This is particularly important given that we are evaluating our first Type III building that can be classified as a high rise. The fire service should be able to be confident of the integrity of the fire resistance of high rise and tall mid-rises (such as podium structures) as they set up fire ground operations and approach the very large mixed use buildings being constructed today.

Public Comment 2:

Proponent : Sam Francis, representing American Wood Council (sfrancis@awc.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. *Fire-retardant-treated wood* framing and sheathing complying with Section 2303.2 shall be permitted ~~where enclosed~~ within *exterior wall* assemblies of a 2-hour rating or less. The required fire resistance shall be maintained and the exposed inner and outer ~~faces~~ surfaces of such ~~exterior walls~~ framing and sheathing shall be covered with gypsum board or other noncombustible material.

Commenter's Reason: The proponent stated that he was concerned with misinterpretation of this section and submitted a bibliography which included the UBC from whence this section was drawn. We agree that there is potential for misinterpretation but the original language failed to capture the subtle differences between the IBC and the UBC. The IBC drafting committee intentionally left out part of the language in the UBC which exacerbates the misinterpretation. Moreover,Chapter 6 is not the only chapter regulating the materials and cladding. Chapter 14 further regulates these issues and needs to be part of the discussion. We believe this language accomplishes the proponents intent in a manner that recognizes the various parts of the code and their impact on these walls.

G177-15

G179-15

602.4, TABLE 602.4, 602.4.1, 602.4.2, 602.4.3, 602.4.4, 602.4.5, 602.4.9, 2304.11, 2304.11.1, TABLE 2304.11.1.1, 2304.11.2, 2304.11.3, 602.4.8, 602.4.8.2, 602.4.8.1, 602.4.6, 602.4.6.2, 602.4.6.1, 2304.11.4, 2304.11.5, 602.4.7, 2304.11.4.2 (New)

Proposed Change as Submitted

Proponent : Dennis Richardson, representing American Wood Council

2015 International Building Code

Revise as follows:

602.4 Type IV. Type IV construction ~~(Heavy Timber, HT)~~ is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated ~~wood~~ heavy timber (HT), without concealed spaces. The minimum dimensions for permitted materials including solid timber, glued-laminated timber, structural composite lumber (SCL), and cross liminated timber (CLT) and details of Type IV construction shall comply with the provisions of this section and Section 2304.11. Exterior walls complying with Section 602.4.1 or 602.4.2 shall be permitted. ~~Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT). For gluedlaminated members~~ Interior walls and ~~structural composite lumber (SCL) members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths~~ partitions of ~~solid sawn lumber are required as specified in Table 602.4.~~ not less than one hour~~*Cross*~~ *fire-resistance rating*~~*-laminated*~~ *or heavy timber* ~~(CLT) dimensions used in this section are actual dimensions.~~ conforming with Section 2304.11.2.2 shall be permitted.

602.4.1 Fire-retardant-treated wood in exterior walls. *Fire-retardant-treated wood* framing complying with Section 2303.2 shall be permitted within exterior wall assemblies not less than 6 inches (152 mm) in thickness with a 2-hour rating or less.

602.4.2 Cross-laminated timber in exterior walls. *Cross-laminated timber* complying with Section 2303.1.4 shall be permitted within exterior wall assemblies not less than 6 inches (152 mm) in thickness with a 2-hour rating or less, provided the exterior surface of the cross-laminated timber is protected by one the following:

1. *Fire-retardant-treated wood* sheathing complying with Section 2303.2 and not less than $^{15}/_{32}$ inch (12 mm) thick;
2. *Gypsum board* not less than $^{1}/_{2}$ inch (12.7 mm) thick; or
3. A noncombustible material.

Delete without substitution:

~~**602.4.3 Columns.** Wood columns shall be sawn or glued laminated and shall be not less than 8 inches (203 mm), nominal, in any dimension where supporting floor loads and not less than 6 inches (152 mm) nominal in width and not less than 8 inches (203 mm) nominal in depth where supporting roof and ceiling loads only. Columns shall be continuous or superimposed and connected in an *approved* manner. Protection in accordance with Section 704.2 is not required.~~

~~**602.4.4 Floor framing.** Wood beams and girders shall be of sawn or glued-laminated timber and shall be not less than 6 inches (152 mm) nominal in width and not less than 10 inches (254 mm) nominal in depth. Framed sawn or glued-laminated timber arches, which spring from the floor line and support floor loads, shall be not less than 8 inches (203 mm) nominal in any dimension. Framed timber trusses supporting floor loads shall have members of not less than 8 inches (203 mm) nominal in any dimension.~~

~~**602.4.5 Roof framing.** Wood-frame or glued-laminated arches for roof construction, which spring from the floor line or from grade and do not support floor loads, shall have members not less than 6 inches (152 mm) nominal in width and have not less than 8 inches (203 mm) nominal in depth for the lower half of the height and not less than 6 inches (152 mm) nominal in depth for the upper half. Framed or glued-laminated arches for roof construction that spring from the top of walls or wall abutments, framed timber trusses and other roof framing, which do not support floor loads, shall have members not less than 4 inches (102 mm) nominal in width and not less than 6 inches (152 mm) nominal in depth. Spaced members shall be permitted to be composed of two or~~

~~more pieces not less than 3 inches (76 mm) nominal in thickness where blocked solidly throughout their intervening spaces or where spaces are tightly closed by a continuous wood cover plate of not less than 2 inches (51 mm) nominal in thickness secured to the underside of the members. Splice plates shall be not less than 3 inches (76 mm) nominal in thickness. Where protected by *approved* automatic sprinklers under the roof deck, framing members shall be not less than 3 inches (76 mm) nominal in width.~~

Revise as follows:

~~602.4.9~~ 602.4.3 Exterior structural members. Where a horizontal separation of 20 feet (6096 mm) or more is provided, wood columns and arches conforming to heavy timber sizes complying with 2304.11 shall be permitted to be used externally.

2304.11 Heavy timber construction. Where a structure ~~or~~ , portion thereof ~~is~~ , or individual structural elements are required to be of ~~Type IV construction~~ heavy timber by ~~other~~ provisions of this code, the building elements therein shall comply with the applicable provisions of Sections 2304.11.1 through ~~2304.11.5~~ 2304.11.4. Minimum dimensions of heavy timber shall comply as applicable in Table 2304.11 based on roofs or floors supported and the configuration of each structural element, or as applicable in Sections 2304.11.2 through 2304.11.4.

2304.11.1 ~~Columns~~ Details of heavy timber structural members. ~~Columns~~
Heavy timber structural members shall be ~~continuous or superimposed throughout all stories by means of reinforced concrete or metal caps~~ detailed and constructed in accordance with ~~brackets, or shall be connected by properly designed steel or iron caps, with pintles and base plates, or by timber splice plates affixed to the columns by metal connectors housed within the contact faces, or by other *approved* methods.~~ Sections 2304.11.1.1 through 2304.11.1.3.

2304.11.1.1 ~~Column connections~~ Columns. Minimum dimensions of columns shall be in accordance with Table 2304.11. Columns shall be continuous or superimposed throughout all stories and connected in an *approved* manner. Girders and beams at column connections shall be closely fitted around columns and adjoining ends shall be cross tied to each other, or intertied by caps or ties, to transfer horizontal loads across joints. Wood bolsters shall not be placed on tops of columns unless the columns support roof loads only. Where traditional heavy timber detailing is used, connections shall be permitted to be by means of reinforced concrete or metal caps with brackets, or shall be connected by properly designed steel or iron caps, with pintles and base plates, or by timber splice plates affixed to the columns by metal connectors housed within the contact faces, or by other approved methods.

~~2304.11.2~~ 2304.11.1.2 Floor framing. Minimum dimensions of floor framing shall be in accordance with Table 2304.11. *Approved* wall plate boxes or hangers shall be provided where wood beams, girders or trusses rest on masonry or concrete walls. Where intermediate beams are used to support a floor, they shall rest on top of girders, or shall be supported by ~~ledgers or blocks securely fastened to the sides of the girders, or they shall be supported by~~ an *approved* metal hanger into which the ends of the beams shall be closely fitted. Where traditional heavy timber detailing is used, these connections shall be permitted to be supported by ledgers or blocks securely fastened to the sides of the girders.

~~2304.11.3~~ 2304.11.1.3 Roof framing. Minimum dimensions of roof framing shall be in accordance with Table 2304.11. Every roof girder and at least every alternate roof beam shall be anchored to its supporting member~~;~~ ~~and every monitor and every sawtooth construction shall be anchored to the main roof construction. Such anchors shall consist of steel or iron bolts of sufficient strength~~ to resist ~~vertical uplift of the roof.~~ forces as required in Chapter 16.

~~602.4.8~~ 2304.11.2 Partitions and walls. Partitions and walls shall comply with Section ~~602.4.8.1~~ 2304.11.2.1 or ~~602.4.8.2~~ 2304.11.2.2.

~~602.4.8.2~~ 2304.11.2.1 Exterior walls. Exterior walls shall permitted to be ~~of one of the following:~~

- ~~1. Noncombustible materials.~~
- 1. ~~Not less than 6 inches (152 mm) in thickness and constructed of one of the following:~~
  - ~~1.1. *Fire-retardant-treated wood* in accordance with Section 2303.2 and complying with Section 602.4.1.~~
  - 1.1. *Cross-laminated timber*~~complying with~~ meeting the requirements of Section ~~602.4.2~~ 2303.1.4.

~~602.4.8.1~~ **2304.11.2.2 Interior walls and partitions.** *No change to text.*

~~602.4.6~~ **2304.11.3 Floors.** Floors shall be without concealed spaces. Wood floors shall be constructed in accordance with Section ~~602.4.6.1~~ 2304.11.3.1 or ~~602.4.6.2~~ 2304.11.3.2.

~~602.4.6.2~~ **2304.11.3.1 Cross-laminated timber floors.** *Cross-laminated timber* shall be not less than 4 inches (102 mm) in actual thickness. *Cross-laminated timber* shall be continuous from support to support and mechanically fastened to one another. *Cross-laminated timber* shall be permitted to be connected to walls without a shrinkage gap providing swelling or shrinking is considered in the design. Corbelling of masonry walls under the floor shall be permitted to be used.

~~602.4.6.1~~ **2304.11.3.2 Sawn or glued-laminated plank floors.** *No change to text.*

Delete without substitution:

~~**2304.11.4 Floor decks.** Floor decks and covering shall not extend closer than $^1/_2$ inch (12.7 mm) to walls. Such $^1/_2$-inch (12.7 mm) spaces shall be covered by a molding fastened to the wall either above or below the floor and arranged such that the molding will not obstruct the expansion or contraction movements of the floor. Corbeling of masonry walls under floors is permitted in place of such molding.~~

Revise as follows:

~~**2304.11.5**~~ **2304.11.4 Roof decks.** Roofs shall be without concealed spaces and roof decks shall be constructed in accordance with Section 2304.11.4.1 or 2304.11.4.2. Other types of decking shall be permitted to be used where equivalent fire resistance and structural properties are being provided. Where supported by a wall, roof decks shall be anchored to walls to resist ~~uplift~~ forces determined in accordance with Chapter 16. Such anchors shall consist of steel bolts, lags, screws or ~~iron bolts~~*approved* hardware of sufficient strength to resist ~~vertical uplift of the roof.~~ prescribed forces.

~~602.4.7~~ **2304.11.4.1 ~~Roofs~~ Cross-laminated timber roofs.** ~~Roofs shall be without concealed spaces and wood roof decks shall be sawn or glued laminated, splined or tongue-and-groove plank, not less than 2 inches (51 mm) nominal in thickness; $1^1/_8$-inch-thick (32 mm) wood structural panel (exterior glue); planks not less than 3 inches (76 mm) nominal in width, set on edge close together and laid as required for floors; or of cross-laminated timber. Other types of decking shall be permitted to be used if providing equivalent fire resistance and structural properties.~~

Cross-laminated timber roofs shall be not less than 3 inches (76 mm) ~~nominal in~~ in actual thickness and shall be continuous from support to support and mechanically fastened to one another.

Add new text as follows:

2304.11.4.2 Sawn, wood structural panel, or glued-laminated plank roofs.

Sawn, wood structural panel, or glued-laminated plank roofs shall be one of the following:

1. Sawn or glued laminated, splined or tongue-and-groove plank, not less than 2 inches (51 mm) nominal in thickness;
2. 11 /8-inch-thick (32 mm) wood structural panel (exterior glue);
3. Planks not less than 3 inches (76 mm) nominal in width, set on edge close together and laid as required for floors.

Revise as follows:

TABLE ~~602.4~~ 2304.11
~~WOOD MEMBER SIZE EQUIVALENCIES~~ MINIMUM DIMENSIONS OF HEAVY TIMBER STRUCTURAL MEMBERS

		MINIMUM NOMINAL SOLID SAWN SIZE	MINIMUM GLUED-LAMINATED NET SIZE	MINIMUM STRUCTURAL COMPOSITE LUMBER NET SIZE

Supporting	Heavy Timber Structural Element	Width, inch	Depth, inch	Width, inch	Depth, inch	Width, inch	Depth, inch
Floor loads only or combined floor and roof loads	Columns; Framed sawn or glued-laminated timber arches which spring from the floor line; Framed timber trusses	8	8	$6\frac{3}{4}$	$8\frac{1}{4}$	7	$7\frac{1}{2}$
	Wood beams and girders	6	10	5	$10\frac{1}{2}$	$5\frac{1}{4}$	$9\frac{1}{2}$
Roof loads only	Columns (roof and ceiling loads); Lower half of: Wood-frame or glued-laminated arches which spring from the floor line or from grade	6	8	5	$8\frac{1}{4}$	$5\frac{1}{4}$	$7\frac{1}{2}$
	Upper half of: Wood-frame or glued-laminated arches which spring from the floor line or from grade	6	6	5	6	$5\frac{1}{4}$	$5\frac{1}{2}$
	Framed timber trusses and other roof framing; [a]	4 [b]	6	3 [b]	$6\frac{7}{8}$	$3\frac{1}{2}$ [b]	$5\frac{1}{2}$

	Framed or glued-laminated arches that spring from the top of walls or wall abutments						

For SI:1 inch = 25.4 mm.

[a] Spaced members shall be permitted to be composed of two or more pieces not less than 3 inches (76 mm) nominal in thickness where blocked solidly throughout their intervening spaces or where spaces are tightly closed by a continuous wood cover plate of not less than 2 inches (51 mm) nominal in thickness secured to the underside of the members. Splice lates shall be not less than 3 inches (76 mm) nominal in thickness.

[b] Where protected by approved automatic sprinklers under the roof deck, framing members shall be not less than 3 inches (76 mm) nominal in width.

Reason: The cross laminated timber product standard was approved in the 2015 IBC in addition to a code change allowing this material to be utilized for the construction of 2 hour exterior walls in type IV-HT construction.
Cross Laminated Timber has been manufactured for over 30 years in Europe and has just recently caught hold on the American Continent where some major structures are under way in Canada and smaller buildings are being built in the US. In Europe buildings of 8 to 10 stories and above are regularly constructed. The following link gives examples of CLT buildings throughout the world. http://www.rethinkwood.com /tall-wood-survey
Because of the high level of carbon sequestration and low embodied energy, it is anticipated there will be a renewed interest in the use of type IV heavy timber as a type of construction. One bit of feedback American Wood Council received after CLT was approved in the 2015 IBC was the observation from one building department that the heavy timber and type IV provisions are confusing, sometimes redundant and spread across different sections of the building code.
This code change is an attempt to address that concern without making any change in the substance of the requirements. Currently type IV construction and heavy timber requirements are found in Sections 602.4 and 2304.11 of the IBC. The clean up and reorganization of those sections is part one of this effort. Part two is the identification and update of many references to type IV construction and heavy timber found throughout the code.
In order to pare down Section 602.4, only the provisions specific to type IV construction remain along with a list of the types of materials found in heavy timber and the reference to the requirements for those materials in Section 2304.11. Requirements specific to type IV remain in 602.4.
Section 2304.11 can best be described as "all things heavy timber". Heavy timber structural elements have long been referenced throughout other parts of the code where a specific heavy timber structural element is detailed for use incorporated in another type of construction. The most general example of this is table 601 footnote c allowing the use of heavy timber roof construction in place of one hour fire resistance rated roof construction in types IB, II, IIIA, and VA construction. The design professional may detail heavy timber as the roof structure and assembly for these different types of construction and they are treated as building elements but the type of construction for the overall structure does not change from the type IB, II, IIIA, or VA.
Heavy timber requirements removed from Section 602.4 are combined and organized with the existing content of Section 2304. Table 602.4 is moved and renamed Table 2304.11. It is updated with information placing a description of the elements that are applicable for a given size timber element based on whether the element supports roof loads and floor loads or only roof loads. Specific footnotes about the size and protection of spaced truss elements and the reduction of roof beam width for sprinklers are noted where applicable.
The non-size related detailing provisions for framing members and connections (columns, floor framing and roof framing) are coalesced into Sections 2304.11.1.1, 2304.11.1.2 and 2304.11.1.3. All of the information in table 2304.11 and the following sections are organized so that the most pertinent information for most designs is found first.
Finally, some of the detailing provisions for traditional heavy timber are identified as such and relocated later in each section while some other information that is archaic and better replaced by reference is removed. A good example of this is the removal of the requirement for the anchorage of "every monitor and every sawtooth construction" to the main roof construction in Section 2304.11.3. New Section 2304.11.1.3 requires roof girders and alternate roof beams to be anchored to their supports as required by Chapter 16.
Finally, Sections 2304.11.2 through 2304.11.4 contain pertinent thickness and detailing requirements for walls, roof and floor deck construction.
The following table gives a more detailed description of where specific requirements are moved.
Since this change is intended not to create any new requirements or delete pertinent content, there are other code changes which contain specific code changes to this information. It is intended this code change will serve as a template for the relocation of those other specific changes through the correlation process should other specific changes be approved.
Part 2 of this effort follows with the change to specific code references to: Section 602.4, type IV construction, heavy timber and Section 2304.11.
The following link provides access to additional information regarding this or other code changes proposed by American Wood Council. http://www.awc.org/Code-Officials/2015-IBC-Code-Changes/

Section in 2015 IBC	Location in proposed change	Comments
602.4 Type IV	602.4 (same location)	modified to direct users to news section on heavy timber details; retains essentials for Type IV construction
Table 602.4	Table 2304.11	additional content is added describing the thickness of structural elements based on loading and configuration from 602.4.3 through 602.4.5
602.4.1 Fire-retardant treated wood in exterior walls, and 602.4.2 Cross-laminated timber in exterior walls	602.4.1 and 602.4.2 (same location)	thickness of wall assembly added from 602.4.8.2 item 2.
602.4.3 Columns	2304.11, Table 2304.11, and Section 2304.11.1.1	requirements combined with existing 2304.11.1 Columns; dimensions in new Table 2304.11.1
602.4.4 Floor framing	2304.11, Table 2304.11	
602.4.5 Roof framing	2304.11, Table 2304.11	
602.4.6 Floors	2304.11.3	
602.4.6.1 Sawn or glued-laminated plank floors	2304.11.3.2	the end of proposed Section 2304.11.3.2 comes from current 2304.11.2
602.4.6.2 Cross-laminated timber floors	2304.11.3.1	
602.4.7 Roofs	2304.11.4 and subsections 2304.11.4.1 and 2304.11.4.2	the current provisions of current section 2304.11.5 are folded into these sections
602.4.8 Partitions and walls and subsections 602.4.8.1 Interior walls and partitions and 602.4.8.2 Exterior walls	602.for exterior wall thickness in type IV; heavy timber in 2304.11.2 2304.11.2.1 and 2304.11.2.2	kept essentials for a Type IV building in 602.4; essentials for heavy timber in proposed section 2304.11.2
602.4.9 Exterior structural members	602.4.3	Unchanged but references proposed heavy timber section
2304.11 Heavy timber construction	2304.11 (same location)	Modified to become charging language for all heavy timber, not just Type IV construction; adds

		charging language for proposed Table 2304.11
2304.11.1 Columns	2304.11.1.1	new section 2304.11.1.1 combines current sections 2304.11.1 and 2304.11.1.1; updates text to be more design focused; retains traditional details
2304.11.1.1 Column connections	2304.11.1.1	incorporated in 2304.11.1
2304.11.2 Floor framing	2304.11.1.2	modifies text to make lesser-used methods a permitted option
2304.11.3 Roof framing	2304.11.1.3	modifies text to refer to design for all forces, not just uplift, archaic language deleted
2304.11.4 Floor decks	2304.11.3.2	current text appears at the end of the proposed section with hardware choices updated; this section incorporates requirements for floors moved from Chapter 6
2304.11.5 Roof decks	2304.11.4	current text appears at end of proposed section, and updates language to reflect current methods and to include consideration of all forces

Cost Impact: Will not increase the cost of construction
Since this is a reorganization of existing requirements, not the creation of new requirements, this code change will not increase the cost of construction.

G179-15 : 602.4-RICHARDSON5194

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The proposal provides necessary consolidation and eliminates duplicative text between Chapters 6 and 23. The revised table is sorely needed to make help the users of the code. Moving the table to Chapter 23 is totally appropriate. The was comfort that with a detailed comparision this is a good clean up with no technical changes. As with any major revision, there remained concerns that all pieces have been maintained and there might be some unintended consequences. The new organization provides better logic for the requirements.

Assembly Action **:** None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Stephen Skalko, Stephen V. Skalko, P.E. & Associates, LLC, representing self requests Disapprove.**

Commenter's Reason: While the General Committee is correct that G179-15 "provides the necessary consolidation and eliminates the duplicative text between Chapter 6 and 23", the proposal should have deleted the duplication of any requirements for Type IV construction from Chapter 23 and placed them in Chapter 6 where they belong. Chapter 6 is titled Types of Construction and as the scope states in Section 601.1 "the provisions of this chapter shall control the classification of buildings as to type of construction". It is the logical place where the code user would be expected to go in order to determine the requirements for the various types of construction. If the code user wants to establish what is needed to be classified as Type IV construction they would look specifically in Section 602.4. Though heavy timber is a wood material, which Chapter 23 certainly covers, the specific requirements for heavy timber types and sizes are specified in the code to meet the inherrent fire resistances expected of Type IV construction, which is covered by Chapter 6. When it comes to actual materials, design, construction and quality of wood materials the user refers to Chapter 23, Wood (See scope in Section 2301.1).
The proposal should have consolidated heavy timber elements critical to classifying the type of construction into Section 602.4 where these requirements belong.

Recommend DISAPPROVAL of G179-15

G179-15

G181-15

602.4, 602.4.6, 602.4.7, 602.4.10 (New)

Proposed Change as Submitted

Proponent : Paul Coats, PE CBO, American Wood Council, representing American Wood Council (pcoats@awc.org)

2015 International Building Code

Revise as follows:

602.4 Type IV. Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces or with concealed spaces meeting the requirements of Section 602.4.10. The details of Type IV construction shall comply with the provisions of this section and Section 2304.11. Exterior walls complying with Section 602.4.1 or 602.4.2 shall be permitted. Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT). For gluedlaminated members and structural composite lumber (SCL) members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table 602.4. *Cross-laminated timber* (CLT) dimensions used in this section are actual dimensions.

602.4.6 Floors. Floors shall be without concealed spaces or with concealed spaces meeting the requirements of Section 602.4.10. Wood floors shall be constructed in accordance with Section 602.4.6.1 or 602.4.6.2.

602.4.7 Roofs. Roofs shall be without concealed spaces ~~and wood~~ or with concealed spaces meeting the requirements of Section 602.4.10. Wood roof decks shall be sawn or glued laminated, splined or tongue-and-groove plank, not less than 2 inches (51 mm) nominal in thickness; $1^1/_8$-inch-thick (32 mm) wood structural panel (exterior glue); planks not less than 3 inches (76 mm) nominal in width, set on edge close together and laid as required for floors; or of cross-laminated timber. Other types of decking shall be permitted to be used if providing equivalent fire resistance and structural properties.

Cross-laminated timber roofs shall be not less than 3 inches (76 mm) nominal in thickness and shall be continuous from support to support and mechanically fastened to one another.

Add new text as follows:

602.4.10 Concealed spaces Concealed spaces shall not contain combustibles other than building elements and electrical, mechanical, fire protection, or plumbing materials and equipment, shall comply with all applicable provisions of Section 718, and in addition shall be protected in accordance with at least one, or any combination, of the following:

1. The building is sprinklered throughout and automatic sprinklers are also provided in the concealed space.

2. The concealed space shall be filled completely with noncombustible insulation.

3. The concealed space shall be lined continuously with a noncombustible material, not less than 1/2-inch gypsum board, or equivalent.

Exception: Concealed spaces within 1-hour fire resistance rated interior walls and partitions in accordance with Section 602.4.8.1 shall not require additional protection.

Reason: The option of having protected concealed spaces in Type IV buildings is important to encourage the adaptive re-use of existing heavy timber buildings as well as to provide for the installation of mechanicals in Type IV cross laminated timber (CLT) construction. In addition to the current requirements for all concealed spaces in combustible construction, this change would require additional protection of the concealed spaces with sprinkler coverage, or eliminating all air space with noncombustible insulation, or covering all combustible surfaces with noncombustible materials or gypsum. If sprinkler protection is chosen, the entire building must be protected by sprinklers.
Additional information related to the proposal may be posted at:
http://www.awc.org/Code-Officials/2015-IBC-Code Changes/

Cost Impact: Will not increase the cost of construction
The code change provides the option of having protected concealed spaces in Type IV buildings, therefore does not increase the cost of construction.

G181-15 : 602.4-COATS4032

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal was found to be confusing as to what was the real intent regarding the concealed spaces and what is allowed with sprinklers in these spaces. Further in the confusion is what is the intent if these spaces includes FRTW versus untreated wood. The committee was uncomfortable with third option for the treatment of concealed spaces.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Paul Coats, PE CBO, representing American Wood Council (pcoats@awc.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

602.4 Type IV. Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and

the interior building elements are of solid or laminated wood without concealed spaces or with concealed spaces meeting the requirements of Section 602.4.10. The details of Type IV construction shall comply with the provisions of this section and Section 2304.11. Exterior walls complying with Section 602.4.1 or 602.4.2 shall be permitted. Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT). For ~~gluedlaminated~~ glued laminated members and structural composite lumber (SCL) members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table 602.4. *Cross-laminated timber* (CLT) dimensions used in this section are actual dimensions.

602.4.6 Floors. Floors shall be without concealed spaces or with concealed spaces meeting the requirements of Section 602.4.10. Wood floors shall be constructed in accordance with Section 602.4.6.1 or 602.4.6.2.

602.4.7 Roofs. Roofs shall be without concealed spaces or with concealed spaces meeting the requirements of Section 602.4.10. Wood roof decks shall be sawn or glued laminated, splined or tongue-and-groove plank, not less than 2 inches (51 mm) nominal in thickness; $1^1/_8$-inch-thick (32 mm) wood structural panel (exterior glue); planks not less than 3 inches (76 mm) nominal in width, set on edge close together and laid as required for floors; or of cross-laminated timber. Other types of decking shall be permitted to be used if providing equivalent fire resistance and structural properties.

Cross-laminated timber roofs shall be not less than 3 inches (76 mm) nominal in thickness and shall be continuous from support to support and mechanically fastened to one another.

602.4.10 Concealed spaces Concealed spaces shall not contain combustibles other than building elements and electrical, mechanical, fire protection, or plumbing materials and equipment, shall comply with all applicable provisions of Section 718, and in addition shall be protected in accordance with at least one, or any combination, of the following:

1. The building is sprinklered throughout and automatic sprinklers are also provided in the concealed space.

2. The concealed space shall be filled completely with noncombustible insulation.

3. The concealed space shall be lined continuously with ~~a noncombustible material,~~ not less than 1/2-inch gypsum board~~,~~ or ~~equivalent~~ noncombustible materials.

Exception: Concealed spaces within 1-hour fire resistance rated interior walls and partitions in accordance with Section 602.4.8.1 shall not require additional protection.

Commenter's Reason: The modification simplifies the third option, making protection with gypsum or noncombustible materials the only alternatives for the lining of concealed spaces in Type IV construction, if option 1 or 2 are not chosen.

These conservative criteria supersede and do not conflict with the criteria for concealed spaces in NFPA 13. If sprinklers are provided in the concealed space, they must comply with all the requirements of NFPA 13 for their design and installation. The two other alternatives prescriptively parallel provisions in NFPA 13 for protecting

concealed spaces--filling the space with noncombustible insulation (8.15.1.2.7) or covering all combustible surfaces (8.15.1.2.10). In addition, allowance for limited combustibles such as cabling or pipes also parallels the NFPA 13 provisions (8.15.1.2.1). This is a conservative approach that will allow for the practical adaptive reuse and new construction of Type IV buildings without reduction of fire safety.
AWC has a web page with further information about our proposed changes and public comments: http://www.awc.org/Code-Officials/2015-IBC-Code-Changes/

G181-15

G182-15

602.4.2, 602.4.8.2

Proposed Change as Submitted

Proponent : David Tyree, American Wood Council, representing American Wood Council (dtyree@awc.org)

2015 International Building Code

Revise as follows:

602.4.2 Cross-laminated timber in exterior walls. *Cross-laminated timber* complying with Section 2303.1.4, and associated glued laminated timber and structural composite lumber elements that are rated as required for the wall, shall be permitted within exterior wall assemblies with a 2-hour rating or less, provided the exterior surface of the cross-laminated timber ~~is~~ and associated elements are protected by one the following:

1. *Fire-retardant-treated wood* sheathing complying with Section 2303.2 and not less than $^{15}/_{32}$ inch (12 mm) thick;
2. *Gypsum board* not less than $^{1}/_{2}$ inch (12.7 mm) thick; or
3. A noncombustible material.

602.4.8.2 Exterior walls. Exterior walls shall be of one of the following:

1. Noncombustible materials.
2. Not less than 6 inches (152 mm) in thickness and constructed of one of the following:
   - 2.1. *Fire-retardant-treated wood* in accordance with Section 2303.2 and complying with Section 602.4.1.
   - 2.2. *Cross-laminated timber* and associated elements complying with Section 602.4.2.

Reason: Reason: The code currently does not recognize that no member of glued laminated or SCL wood of heavy timber dimensions may be used as a beam, header, column or other member within a wall of CLT which is, itself, considered to be heavy timber. It seems rather obvious that a heavy timber element may be used within the construction of a wall of heavy timber construction. This change is intended to place into the code that which may seem obvious.
For a complete list of AWC code change proposals and additional information please go to http://www.awc.org/Code-Officials/2015-IBC-Code-Changes. For more information concerning CLT lumber and construction, please go to http://www.rethinkwood.com/tall-wood-survey.

Cost Impact: Will not increase the cost of construction
No increase in construction costs as proposal only clarifies the intent of the code.

G182-15 : 602.4.2-TYREE4642

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee found the proposed text very confusing. They felt that the term 'associated element' was undefined. They weren't sure what the phrasing 'rated as required for the wall' was going to accomplish.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Tyree, representing American Wood Council requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

602.4.2 Cross-laminated timber in exterior walls. *Cross-laminated timber* complying with Section 2303.1.4, ~~and associated~~ including glued laminated timber and structural composite lumber ~~elements~~ , that are rated as required for the wall, shall be permitted within exterior wall assemblies with a 2-hour rating or less, provided the exterior ~~surface of the cross-laminated timber and associated elements~~ surfaces are protected by one the following:

1. *Fire-retardant-treated wood* sheathing complying with Section 2303.2 and not less than $^{15}/_{32}$ inch (12 mm) thick;
2. *Gypsum board* not less than $^{1}/_{2}$ inch (12.7 mm) thick; or
3. A noncombustible material.

602.4.8.2 Exterior walls. Exterior walls shall be of one of the following:

1. Noncombustible materials.
2. Not less than 6 inches (152 mm) in thickness and constructed of one of the following:
    - 2.1. *Fire-retardant-treated wood* in accordance with Section 2303.2 and complying with Section 602.4.1.
    - 2.2. *Cross-laminated timber, glued laminated timber or structural composite lumber* ~~and associated elements~~ complying with Section 602.4.2.

Commenter's Reason: The original proposal made reference to "associated elements" which caused confusion among the committee members as to what an "associated element" included. This public comment revises the proposal to specifically reference the materials which would be allowed within the 2-hour exterior wall assembly. In CLT construction, other wood structural products such as glued laminated timber and structural composite lumber are required to carry the vertical and horizontal loads which may not be able to be supported by the CLT panels alone. This proposal clarifies the intent and describes the characteristics of CLT construction.

G182-15

G183-15
602.4.8.2

Proposed Change as Submitted

Proponent : Joseph Holland, representing Hoover Treated Wood Products (jholland@frtw.com)

2015 International Building Code

Revise as follows:

602.4.8.2 Exterior walls. Exterior walls shall be of one of the following:
1. Noncombustible materials.
~~2. Not less than 6 inches (152 mm) in thickness and constructed of one of the following:~~
~~2.1.~~ 2. *Fire-retardant-treated wood* in accordance with Section 2303.2 and complying with Section 602.4.1.
~~2.2~~. 3.. *Cross-laminated timber* complying with Section 602.4.2 not less than 6 inches (152mm) in thickness.

Reason: Prior to the 2015 code there was no mandate to erect a wall constructed with FRTW to be at least 6 inches thick. This provision was added when the membership included cross laminated timber (CLT) to type four construction.
No justification was submitted to explain the rationale behind the 6-inch requirement for FRTW. FRTW has been allowed in Type IV building under the UBC since the late 1960's and the IBC since its inception. We are not aware of any problems. The change to the 2015 code will make any wall constructed before the 2015 code with 2X4 studs nonconforming.

The wall load and fire resistance requirements in the code will dictate how the wall is to be constructed. A minimum thickness is not needed.

Cost Impact: Will not increase the cost of construction
FRTW can be used in bearing and nonbearing exterior walls in Type IV construction. For a nonbearing wall, the required fire rating could be the only factor dictating the thickness. Where no fire rating is required by Table 602 the FRTW stud could be 2X4 or less with only an exterior finish. Total thickness could be 4 inches. Using the mandatory minimum thickness the wall would have to be 2X6 with an exterior finish membrane of 1/2 or more. Assuming everything else is equal; 2X4's cost less than 2X6's.

There are two important aspects for consideration of frame construction in determining how thick a bearing wall must be: required fire rating and the load. In this case the wall needs a 2 hr rating. Depending on several factors: load, height, unsupported length, etc., a 2X4 could be used. Example: 2X4=3.5 inches. 2-5/8 inch gypsum=1.25 inches, if more than 10 feet fire separation distance the exterior finish could be a material only 1/2 inch thick or less as shown in UL V314. See link:

http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpage.html?name=BXUV.V314&ccnshorttitle=Fire-resistance+Ratings+-+ANSI/UL+263&objid=1084396657&cfgid=1073741824&version=versionless&parent_id=1(

Total thickness=5.25 inches. Again, assuming everything else is equal: 2X4's cost less than 2X6's.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee preferred the solution provided by G184-15. This proposal would result in the wood versus the wall having the minimum dimension, and therefore is grammatically confused.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Joseph Holland, Hoover Treated Wood Products, representing Hoover Treated Wood Products (jholland@frtw.com) requests Approve as Submitted.

Commenter's Reason: Prior to the 2015 code there was no mandate to erect a wall constructed with FRTW to be at least 6 inches thick. This provision was added when the membership included cross laminated timber (CLT) to type four construction. No justification was submitted to explain the rationale behind the 6-inch requirement for FRTW. FRTW has been allowed in Type IV building under the UBC since the late 1960's and the IBC since its inception. We are not aware of any problems. The change to the 2015 code will make any wall constructed before the 2015 code with 2X4 studs nonconforming.

The wall load and fire resistance requirements in the code will dictate how the wall is to be constructed. A minimum thickness is not needed for fire-retardant-treated wood.

CIT on the other hand is dependent on the thickness of the wood as the fire resistance is a function of the char rate of the wood. The wood remaining after the required fire rating must be of sufficient thickness to be able to support the load, hence the minimum thickness of the CLT.

G183-15

G184-15
602.4.8.2

Proposed Change as Submitted

Proponent : Sam Francis, American Wood Council, representing American Wood Council (sfrancis@awc.org)

2015 International Building Code

602.4.8.2 Exterior walls. Exterior walls shall be of one of the following:

1. Noncombustible materials.
~~2. Not less than 6 inches (152 mm) in thickness and constructed of one of the following:~~
~~2.1~~ 2. *Fire-retardant-treated wood* in accordance with Section 2303.2 and complying with Section 602.4.1.
~~2.2~~. 3. *Cross-laminated timber* not less than 4 inches in thickness and complying with Section 602.4.2.

Reason: When these provisions were introduced into the code in the last cycle, an overall wall thickness was deemed to be desirable. However, FRTW has performed suitably without an overall wall thickness requirement and the thickness of CLT will be driven by the required fire resistance rating and structural requirements. Citing an overall wall thickness is confusing and unnecessary, but the actual minimum thickness of the CLT is perhaps useful. Therefore we are proposing to delete the overall thickness of the wall in favor of citing an associated minimum CLT thickness, which requires a re-organization of the section.
When the original code section was developed, an overall thickness of 6 inches was proposed. It included the interior gypsum board (5/8 in.), the exterior gypsum board (5/8 in.) the exterior insulation (?? in.), the exterior cladding (3/4 in.). Thus, the overall thickness included at least 2 inches of non-CLT materials not even counting the insulation which would be required by the energy code. Subtracting the 2 inches of non-CLT material leaves 4 inches of CLT as a minimum dimension. This is completely consistent with the 6 inch requirement from the 2015 IBC. Of course, for a structure of more than 2 stories or which requires a 2 hr. FRR wall, the net dimension will still need to be greater than 6 inches, overall, to achieve the fire resistance rating and the structural capacity. Generally, the structural requirements will exceed this minimum number. But having such a number is necessary to insure the integrity of such a building.

Cost Impact: Will not increase the cost of construction
this change is not a substantive change and thus will not impact costs.

G184-15 : 602.4.8.2-FRANCIS5409

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The proposal clarifies the intent of the requirements for minimum thickness of CLT. It will coordinate with G179-15 the committee approved earlier. There was concern that the change results in there being no minimum thickness required for FRTW used in these locations.

Assembly Action : **None**

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Disapprove.

Commenter's Reason: Approval of this proposal does not make sense. FRTW within Type IV walls is required to be 6 inches while CLT is permitted to be 4 inches based on testimony that FRTW has performed suitably. This is a major change to allow CLT to reduce in size by 2 inches without any other data to justify. In addtion, after reading carefully and putting all the parts together, it seems this proposal also reduces the required size of normal heavy timber material.

G184-15

G185-15
603.1

Proposed Change as Submitted

Proponent : Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

603.1 Allowable materials.
Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. *Fire-retardant-treated wood* shall be permitted in:
    - 1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.
    - 1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.
    - 1.3. Roof construction, including girders, trusses, framing and decking.
        - **Exception:** In buildings of Type IA construction exceeding two *stories abovegrade plane* , *fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).
    - 1.4. <u>Balconies, porches, decks and exterior stairways not used as required exits on buildings three stories or less above grade plane.</u>
2. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.
    - **Exceptions:**
        1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.
        2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.
3. Foam plastics in accordance with Chapter 26.
4. Roof coverings that have an A, B or C classification.
5. *Interior floor finish* and floor covering materials installed in accordance with Section 804.
6. Millwork such as doors, door frames, window sashes and frames.
7. *Interior wall and ceiling finishes* installed in accordance with Sections 801 and 803.
8. *Trim* installed in accordance with Section 806.
9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads

below show windows, including their frames, aprons and show cases.

10. Finish flooring installed in accordance with Section 805.
11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood* , 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
12. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.
13. Combustible *exterior wall*~~*coverings*~~*coverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14.
14. Blocking such as for handrails, millwork, cabinets and window and door frames.
15. Light-transmitting plastics as permitted by Chapter 26.
16. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.
17. Exterior plastic veneer installed in accordance with Section 2605.2.
18. Nailing or furring strips as permitted by Section 803.11.
19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.7 and 1406.3.
20. Aggregates, component materials and admixtures as permitted by Section 703.2.2.
21. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of *fire resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.14 and 1705.15, respectively.
22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.
23. Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 715.
24. Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 718.5.
25. Materials exposed within plenums complying with Section 602 of the *International Mechanical Code* .
26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m^2), in size, lined on both sides with noncombustible materials and the building is protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

Reason: The addition of Sub Section 1.4 is warranted to include the requirements of Section 1406.3, Exception 1 in here.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of existing requirements. It only creates cross references from one section to another. There is no technical changes to the code.

G185-15 : 603.1-MAIEL3437

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The committee found this to be a good additional reference to another allowance for combustible materials allowed for Types I and II construction. It is consistent in intent with many of the other items listed in this section.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Lee Kranz, City of Bellevue, WA, representing Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov); Jonathan Siu, representing Washington Association of Building Officials Technical Code Development Committee (jon.siu@seattle.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

603.1 Allowable materials. Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. *Fire-retardant-treated wood* shall be permitted in:
    - 1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.
    - 1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.
    - 1.3. Roof construction, including girders, trusses, framing and decking.
        - **Exception:** In buildings of Type IA construction exceeding two *stories abovegrade plane*, *fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).
    - 1.4. Balconies, porches, decks and exterior stairways ~~not used as required exits on buildings three stories or less above grade plane~~ constructed in accordance with Exception 1 of Section 705.2.3.1.
2. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.

    Exceptions:
    1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.
    2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not

more than 200.

3. Foam plastics in accordance with Chapter 26.
4. Roof coverings that have an A, B or C classification.
5. *Interior floor finish* and floor covering materials installed in accordance with Section 804.
6. Millwork such as doors, door frames, window sashes and frames.
7. *Interior wall and ceiling finishes* installed in accordance with Sections 801 and 803.
8. *Trim* installed in accordance with Section 806.
9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.
10. Finish flooring installed in accordance with Section 805.
11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood*, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
12. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.
13. Combustible *exterior wallcoverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14.
14. Blocking such as for handrails, millwork, cabinets and window and door frames.
15. Light-transmitting plastics as permitted by Chapter 26.
16. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.
17. Exterior plastic veneer installed in accordance with Section 2605.2.
18. Nailing or furring strips as permitted by Section 803.11.
19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.7 and 1406.3.
20. Aggregates, component materials and admixtures as permitted by Section 703.2.2.
21. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of *fire resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.14 and 1705.15, respectively.
22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with

Section 714.

23. Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 715.
24. Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 718.5.
25. Materials exposed within plenums complying with Section 602 of the *International Mechanical Code*.
26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m^2), in size, lined on both sides with noncombustible materials and the building is protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

Commenter's Reason: This public comment correlates this code change with FS 15-15, which was approved by the Fire Safety Committee.

The original proposal correlated with Section 1406.3, exception 1. FS 15-15 moved Section 1406.3 to a new Section 705.2.3.1. In order to avoid duplicative language in the code (with the attendant issues of maintaining both sections), this public comment turns the Committee-approved text in 603.1 into a pointer to the new 705.2.3.1.

Public Comment 2:

Proponent : Jonathan Siu, representing City of Seattle Dept of Planning & Development (jon.siu@seattle.gov) requests Disapprove.

Commenter's Reason: The issues raised in this proposal are adequately covered in FS 15-15, which was approved as modified by the Fire Safety Committee. FS 15 moved the construction requirements from Chapter 14 to new Sections 705.2.3 and 705.2.4. The modification approved by the Committee added cross references in Section 603.1 to the new 705.3.1, and clarified the scope of Section 705.2.4. The text contained in this proposal is already contained in the new Section 705.2.3, so adding it in Section 603.1 would be redundant, and could lead to coordination issues between the two sections in the future.

G185-15

G188-15

TABLE 1203.3

Proposed Change as Submitted

Proponent : Joseph Lstiburek (joe@buildingscience.com)

2015 International Building Code

Revise as follows:

TABLE 1203.3
INSULATION FOR CONDENSATION CONTROL

CLIMATE ZONE	MINIMUM R-VALUE OF AIR-IMPERMEABLE INSULATION[a]
~~2B and 3B tile roof only~~	~~0 (none required)~~
1, 2A, 2B, 3A, 3B~~[b]~~, 3C	~~R-5~~ (none required)
4C	R-10
4A, 4B	R-15
5	R-20
6	R-25
7	R-30
8	R-35

a. Contributes to, but does not supersede, thermal resistance requirements for attic and roof assemblies in Section C402.2.1 of the *International Energy Conservation Code*.

b. In climate zones 3A, 3B and 3C where air-permeable insulation is provided and applied in direct contact with the underside of the structural sheathing, it shall be a Class II vapor retarder, or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.

Reason: This significantly reduces the cost of constructing unvented attics. It allows the use of cellulose and fiberglass insulation.

Cost Impact: Will not increase the cost of construction
This will significantly reduce the cost of construction

G188-15 : T1203.3-LSTIBUREK5443

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal didn't include data to support this technical change. The footnote was confusing because its placement in the table appears to limit its applicaiton to Climate Zone 3B, but the footnote itself addresses 3A, 3B and 3C; therefore the application is unclear. The cost impact statement is questionable because this change would add a construction requirement, but the proponent says there would be no impact on cost of construction.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Craig Conner, representing self (craig.conner@mac.com); Joseph Lstiburek, representing self (joe@buildingscience.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

1203.3 Unvented attic and unvented enclosed rafter assemblies. Unvented *attics* and unvented enclosed roof framing assemblies created by ceilings applied directly to the underside of the roof framing members/rafters and the structural roof sheathing at the top of the roof framing members shall be permitted where all the following conditions are met:

1. The unvented *attic* space is completely within the *building thermal envelope*.
2. No interior Class I vapor retarders are installed on the ceiling side (*attic* floor) of the unvented *attic* assembly or on the ceiling side of the unvented enclosed roof framing assembly.
3. Where wood shingles or shakes are used, a minimum $^{1}/_{4}$-inch (6.4 mm) vented airspace separates the shingles or shakes and the roofing underlayment above the structural sheathing.
4. In *climate zones* 5, 6, 7 and 8, any air-impermeable insulation shall be a Class II vapor retarder or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.
5. Insulation shall be located in accordance with the following:
    - 5.1. Item 5.1.1, 5.1.2, 5.1.3 or 5.1.4 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.
        - 5.1.1. Where only air-impermeable insulation is

provided, it shall be applied in direct contact with the underside of the structural roof sheathing.

5.1.2. Where air-permeable insulation is ~~provided inside the building thermal envelope, it shall be installed in accordance with Item 5.1. In addition to the air-permeable insulation~~ installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing in accordance with the R values in Table ~~1203.3~~ 1203.3(1) for condensation control. Alternatively, in *climate zones* 1, 2 and 3, air permeable insulation shall comply with Table 1203.3 (2).

5.1.3. Where both air-impermeable and air-permeable insulation are provided, the *air-impermeable insulation* shall be applied in direct contact with the underside of the structural roof sheathing in accordance with Item 5.1.1 and shall be in accordance with ~~the R values in~~ Table 1203.3(1) or Table ~~1203.3 for condensation control~~ 1203.3(2). The *air-permeable insulation* shall be installed directly under the *air-impermeable insulation*.

5.1.4. Alternatively, sufficient rigid board or sheet insulation shall be installed directly above the structural roof sheathing to maintain the monthly average temperature of the underside of the structural roof sheathing above 45°F (7°C). For calculation purposes, an interior air temperature of 68°F (20°C) is assumed and the exterior air temperature is assumed to be the monthly average outside air temperature of the three coldest months.

5.2. Where preformed insulation board is used as the *air-permeable insulation* layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.

6. In *climate zones* 1, 2, and 3, the attic space shall be supplied with air from the occupiable space with a flow rate of not less than 50 CFM for each 1000 square feet of ceiling area.

Exceptions:

1. Section 1203.3 does not apply to special use structures or enclosures such as swimming pool enclosures, data processing centers, hospitals or art galleries.
2. Section 1203.3 does not apply to enclosures in *climate zones*5 through 8 that are humidified beyond 35 percent during the three coldest months.

TABLE 1203.3(1)
ALTERNATIVE MOISTURE CONTROL

INSULATION TYPE	REQUIREMENTS
Air permeable insulation	Vapor diffusion vent at highest point of roof, vapor permeability ≥20 perms, and area ≥1:600 of ceiling area. Roof slope ≥3:12 (25%, vertical/horizontal)

TABLE ~~1203.3~~ 1203.3(2)
INSULATION FOR CONDENSATION CONTROL

CLIMATE ZONE	MINIMUM R-VALUE OF AIR-IMPERMEABLE INSULATION[a]
2B and 3B tile roof only	0 (none required)
1, 2A, 2B, 3A, 3B, 3C	R-5
4C	R-10
4A, 4B	R-15
5	R-20
6	R-25
7	R-30
8	R-35

a. Contributes to, but does not supersede, thermal resistance requirements for attic and roof assemblies in Section C402.2.1 of the *International Energy Conservation Code*.

Commenter's Reason: Unvented attic assemblies are most commonly constructed with spray polyurethane foam applied directly to the underside of the roof deck. This is a historically successful method of construction with over 20 years of experience. Another approach to unvented attic assemblies is to insulate over the top of the roof deck with rigid insulation boards. Again this is a historically successful method of construction with over a half century of experience. Both approaches are not low cost compared to traditional vented attic assemblies that are constructed with fiberglass batts, blown cellulose and blown fiberglass.
The proposed code change allows the use of lower cost alternatives to spray polyurethane foam applied directly to the underside of the roof deck or to insulating over the top of the roof deck with rigid insulation boards to construct unvented attic

assemblies. Specifically, the proposed code change allows the use of fiberglass batts, blown cellulose and blown fiberglass. The approach is limited to Climate Zones 1, 2 and 3 based on research and historic experience over the past decade. The proposed code change adds a vent as a moisture control measure that is needed for some types of insulation.

The proposed code change, by allowing alternatives to spray polyurethane foam, provides more material choices for designers, builders and consumers who have issues with the greenhouse gas potential of blowing agents, impacts of fire retardants and off-gassing of some spray polyurethane foam. Or just want to try a less expensive option.

The proposed code change also addresses issues with all methods of unvented attic assembly construction in Climate Zones 1, 2 and 3 that occur due to the lack of conditioning by requiring supply air to the unvented attic space.

For an explanation with figures and pictures, and support for the statement that the change can reduce costs, see "Venting Vapor":

http://www.buildingscience.com/documents/insights/bsi-088-venting-vapor?topic=doctypes/insights

For more history of conditioned attics, see "Cool Hand Luke Does Attics":

http://www.buildingscience.com/documents/insights/bsi-077-cool-hand-luke-meets-attics/view

For the recently completed technical data the committee referred to: http://www.buildingscience.com/documents/bareports/ba-1409-field-testing-unvented-roofs-asphalt-shingles-col-hot-humid-climates/view

G188-15

G190-15
1207.2, 1207.3

Proposed Change as Submitted

Proponent : David Tyree, representing American Wood Council (dtyree@awc.org)

2015 International Building Code

Revise as follows:

1207.2 Air-borne sound. Walls, partitions and floor/ceiling assemblies separating *dwelling units* and *sleeping units* from each other or from public or service areas shall have a sound transmission class of not less than 50, or not less than 45 if field tested, for air-borne noise when tested in accordance with ASTM E 90. Alternatively, the sound transmission class of walls, partitions and floor/ceiling assemblies shall be established by engineering analysis based on a comparison of walls, partitions and floor/ceiling assemblies having sound transmission class ratings as determined by the test procedures set forth in ASTM E 90. Penetrations or openings in construction assemblies for piping; electrical devices; recessed cabinets; bathtubs; soffits; or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings. This requirement shall not apply to entrance doors; however, such doors shall be tight fitting to the frame and sill.

1207.3 Structure-borne sound. Floor/ceiling assemblies between *dwelling units* and *sleeping units* or between a *dwelling unit* or *sleepingunit* and a public or service area within the structure shall have an impact insulation class rating of not less than 50, or not less than 45 if field tested, when tested in accordance with ASTM E 492. Alternatively, the impact insulation class of floor/ceiling assemblies shall be established by engineering analysis based on a comparison of floor/ceiling assemblies having impact insulation class ratings as determined by the test procedures set forth in ASTM E492.

Reason: Reason: The proposed performance alternative recognizes the current practice of STC and IIC interpolation based on data from testing performed in accordance with ASTM E90 and ASTM E492. It mirrors provisions of Section 703.3, which provides a similar engineering analysis alternative for establishing fire resistance ratings, thereby providing flexibility for designers. For a complete list of AWC code change proposals and additional information please go to http://www.awc.org/Code-Officials/2015-IBC-Code-Changes.

Cost Impact: Will not increase the cost of construction
This proposal does not increase the cost of construction as it only recognizes the use of ASTM E90 and E492.

G190-15 : 1207.2-TYREE4803

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: The proposal allows for a performance based option for complying with the requirements of this section..

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jonathan Humble, American Iron and Steel Institute, representing American Iron and Steel Institute (jhumble@steel.org) requests Disapprove.

Commenter's Reason: This subject is much more complicated that it appears. Whether taking on the services of an acoustical design professional or a researcher from an acoustic laboratory, the process of engineering values to determine estimated STC and IIC values without testing are difficult. Developing an engineering analysis does not entail merely examining one or two acoustic test reports, and determine from similarities in those reports, to estimate a proposed design's acoustic rating(s). Such a task requires considerable experience, knowledge of the characteristics of individual materials, and available information (e.g. test reports), in order to estimate the STC or IIC value of an assembly.
The process becomes more difficult and complicated when the reference design contains a product or material which has not been tested, but which is intended to be incorporated into the proposed design for the building. The question then becomes "how to evaluate the non-tested product in this assembly without tested information?"

Further, the proposal contains several faults, as follows:

- Allows anyone to perform an engineering analysis,
- Does not allow the code official to approve the engineering analysis approach option,
- Assumes that a sufficient amount of tested design information is open to the public, when in fact the majority of laboratory tests are in private hands.

Also, contrary to the code development committee comments at the spring hearing, this proposal will not permit greater opportunities for estimating Impact Insulation Class (IIC) designs through the option of engineering analysis. Since the engineering analysis requires multiple tested designs from which to apply professional judgment, the less tested designs there are the less opportunity there is to reasonably estimate an IIC rating of a proposed assembly.

In view of the above we recommend that this proposal be disapproved.

Public Comment 2:

Proponent : J. Michael Spencer, representing JMS Acoustics LLC (mspencer@JMSAcoustics.com) requests Disapprove.

Commenter's Reason: I am concerned that some people may use the "engineering analysis" route to legally pass substandard assemblies and partitions. The way it is worded, the "engineering analysis" seems just as valid as a laboratory or field test, when it clearly is not. There is no standard for the "engineering analysis," and the varriation in these analyses may be signifigant. As such, this shound not be part of the code.

G191-15

202 (New), 1208.3, 1208.4

Proposed Change as Submitted

Proponent : Lee Kranz, representing Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

DWELLING UNIT, EFFICIENCY A dwelling unit containing not more than one habitable room.

Revise as follows:

1208.3 Room area. Every *dwelling unit* shall have no fewer than one room that shall have not less than 120 square feet (13.9 m^2) of *net floor area*. Other habitable rooms shall have a *net floor area* of not less than 70 square feet (6.5 m^2). *Efficiency dwelling units* shall be in accordance with Section 1208.4.

Exception: Kitchens are not required to be of a minimum floor area.

1208.4 Efficiency dwelling units. An efficiency ~~living~~ dwelling unit shall conform to the requirements of the code except as modified herein:

1. The unit shall have a living room of not less than 220 square feet (20.4 m^2) of floor area. An additional 100 square feet (9.3 m^2) of floor area shall be provided for each occupant of such unit in excess of two.
2. The unit shall be provided with a separate closet.
3. The unit shall be provided with a kitchen sink, cooking appliance and refrigeration facilities, each having a clear working space of not less than 30 inches (762 mm) in front. Light and *ventilation* conforming to this code shall be provided.
4. The unit shall be provided with a separate bathroom containing a water closet, lavatory and bathtub or shower.

Reason: The current provisions of Section 1208.4 have no purpose in the building code because the scoping of these provisions depends on what is meant by "efficiency dwelling unit". Absent a clear definition of what an Efficiency Dwelling Unit (EDU) is in the building code there is no way to enforce the efficiency dwelling unit provisions found in IBC Section 1208.4. "Efficiency dwelling unit" is not a commonly used term, but our understanding is that it is what is more commonly called a studio apartment.
According to Section 1208.3, dwelling units may consist of a single room of 120 square feet. For example, this could be a single 10' X 12' room. This is not an acceptable amount of space for a dwelling unit. This code change will require that at least one room of not less than 220 square feet be provided in dwelling units containing only a single habitable room. It will also require a separate closet, bathroom, kitchen sink, a cooking appliance, & a refrigerator as well as the

application of light and ventilation regulations.

Cost Impact: Will not increase the cost of construction
This code change adds a definition to clarify what an efficiency dwelling unit is and does not change the cost to construction.

G191-15 : 1208.3-KRANZ3736

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The code already sufficiently addresses these issues. However, we may need to address smaller square footages in the code in the future.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Lee Kranz, City of Bellevue, WA, representing Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov) requests Approve as Submitted.

Commenter's Reason: What is an "Efficiency dwelling unit"? Ask 10 different people and you'll get 10 answers. We need a definition of efficiency dwelling unit in order to apply Section 1208.4 The definition doesn't change the requirements in Section 1208.4 at all, as one member of the Committee alluded, or any other requirements for room size. We are only stating under what circumstances the requirements in Section 1208.4 apply. Absent a definition, Section 1208.4 is meaningless--the requirements are not scoped anywhere else.

G191-15

G193-15

2901, [P] 2901.1, 2902, [P] 2902.1, [P] TABLE 2902.1, [P] 2902.1.1, [P] 2902.1.2, [P] 2902.2, [P] 2902.2.1, [P] 2902.3, [P] 2902.3.1, [P] 2902.3.2, [P] 2902.3.3, [P] 2902.3.4, [P] 2902.3.5, [P] 2902.3.6, [P] 2902.4, [P] 2902.4.1, [P] 2902.5, [P] 2902.6

Proposed Change as Submitted

Proponent : Janine Snyder, City of Thornton, Colorado, representing Colorado Association of Plumbing & Mechanical Officials (CAPMO) (Janine.Snyder@cityofthornton.net)

2015 International Building Code

Delete without substitution:

~~**CHAPTER 29**~~
~~**PLUMBING SYSTEMS**~~

~~**SECTION 2901**~~
~~**GENERAL**~~

~~**[P] 2901.1 Scope.** The provisions of this chapter and the *International Plumbing Code* shall govern the erection, installation, *alteration*, repairs, relocation, replacement, addition to, use or maintenance of plumbing equipment and systems. Toilet and bathing rooms shall be constructed in accordance with Section 1210. Plumbing systems and equipment shall be constructed, installed and maintained in accordance with the *International Plumbing Code*. Private sewage disposal systems shall conform to the *International Private Sewage Disposal Code*.~~

~~**SECTION 2902**~~
~~**MINIMUM PLUMBING FACILITIES**~~

~~**TABLE 2902.1**~~
~~**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 2902.1.1 and 2902.2)**~~

~~No.~~	~~CLASSIFICATION~~	~~OCCUPANCY~~	~~DESCRIPTION~~	~~WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE *INTERNATIONAL PLUMBING CODE*)~~		~~LAVATORIES~~		~~BATHTUBS/ SHOWERS~~	~~DRINKING FOUNTAINS (SEE SECTION 410 OF THE *INTERNATIONAL PLUMBING CODE*)~~	~~OTHER~~
				~~Male~~	~~Female~~	~~Male~~	~~Female~~			
~~1~~	~~Assembly (continued)~~	~~A-1[d]~~	~~Theaters and other buildings for the performing arts and motion pictures~~	~~1 per 125~~	~~1 per 65~~	~~1 per 200~~		~~—~~	~~1 per 500~~	~~1 service sink~~
		~~A-2[d]~~	~~Nightclubs, bars, taverns, dance halls and buildings for similar purposes~~	~~1 per 40~~	~~1 per 40~~	~~1 per 75~~		~~—~~	~~1 per 500~~	~~1 service sink~~
			~~Restaurants, banquet halls and food courts~~	~~1 per 75~~	~~1 per 75~~	~~1 per 200~~		~~—~~	~~1 per 500~~	~~1 service sink~~
		~~A-3[d]~~	~~Auditoriums without~~	~~1 per 125~~	~~1 per 65~~	~~1 per 200~~		~~—~~	~~1 per 500~~	~~1 service~~

			permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums						sink
			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750	—	1 per 1,000	1 service sink
			Places of worship and other religious services	1 per 150	1 per 75	1 per 200	—	1 per 1,000	1 service sink

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE *INTERNATIONAL PLUMBING CODE*)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAINS (SEE SECTION 410 OF THE *INTERNATIONAL PLUMBING CODE)*	OTHER
				Male	Female	Male	Female			
1	Assembly	A-4	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
2	Business	B	Buildings for the transaction of business, professional services, other services involving merchandise, office	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		—	1 per 100	1 service sink[e]

			~~buildings, banks, light industrial and similar uses~~					
~~3~~	~~Educational~~	~~E~~	~~Educational facilities~~	~~1 per 50~~	~~1 per 50~~	~~—~~	~~1 per 100~~	~~1 service sink~~
4	~~Factory and industrial~~	~~F-1 and F-2~~	~~Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials~~	~~1 per 100~~	~~1 per 100~~	~~See Section 411 of the *International Plumbing Code*~~	~~1 per 400~~	~~1 service sink~~
~~5~~	~~Institutional~~	~~I-1~~	~~Residential care~~	~~1 per 10~~	~~1 per 10~~	~~1 per 8~~	~~1 per 100~~	~~1 service sink~~
		~~I-2~~	~~Hospitals, ambulatory nursing home care recipient[b]~~	~~1 per room[c]~~	~~1 per room[c]~~	~~1 per 15~~	~~1 per 100~~	~~1 service sink~~
		-	~~Employees, other than residential care[b]~~	~~1 per 25~~	~~1 per 35~~	~~—~~	~~1 per 100~~	~~—~~
		-	~~Visitors, other than residential care~~	~~1 per 75~~	~~1 per 100~~	~~—~~	~~1 per 500~~	~~—~~
		~~I-3~~	~~Prisons[b]~~	~~1 per cell~~	~~1 per cell~~	~~1 per 15~~	~~1 per 100~~	~~1 service sink~~
		~~I-3~~	~~Reformatories, detention centers and correctional centers[b]~~	~~1 per 15~~	~~1 per 15~~	~~1 per 15~~	~~1 per 100~~	~~1 service sink~~
		-	~~Employees[b]~~	~~1 per 25~~	~~1 per 35~~	~~—~~	~~1 per 100~~	~~—~~
		~~I-4~~	~~Adult day care and child day care~~	~~1 per 15~~	~~1 per 15~~	~~1~~	~~1 per 100~~	~~1 service sink~~

No.	**~~CLASSIFICATION~~**	**~~OCCUPANCY~~**	**~~DESCRIPTION~~**	**~~WATER CLOSETS (URINALS SEE SECTION 419.2~~**	**~~LAVATORIES~~**	**~~BATHTUBS OR SHOWERS~~**	**~~DRINKING FOUNTAINS (SEE SECTION 410 OF THE~~**	**~~OTHER~~**

				~~OF THE *INTERNATIONAL PLUMBING CODE*)~~					~~*INTERNATIONAL PLUMBING CODE)*~~	
				Male	**Female**	**Male**	**Female**			
6	~~Mercantile~~	~~M~~	~~Retail stores, service stations, shops, salesrooms, markets and shopping centers~~	~~1 per 500~~		~~1 per 750~~		—	~~1 per 1,000~~	~~1 service sink[e]~~
7	~~Residential~~	~~R-1~~	~~Hotels, motels, boarding houses (transient)~~	~~1 per sleeping unit~~		~~1 per sleeping unit~~		~~1 per sleeping unit~~	—	~~1 service sink~~
		~~R-2~~	~~Dormitories, fraternities, sororities and boarding houses (not transient)~~	~~1 per 10~~		~~1 per 10~~		~~1 per 8~~	~~1 per 100~~	~~1 service sink~~
		~~R-2~~	~~Apartment house~~	~~1 per dwelling unit~~		~~1 per dwelling unit~~		~~1 per dwelling unit~~	—	~~1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling units~~
		~~R-3~~	~~One- and two-family dwellings and lodging houses with five or fewer guest rooms~~	~~1 per dwelling unit~~		~~1 per 10~~		~~1 per dwelling unit~~	—	~~1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit~~
		~~R-3~~	~~Congregate living facilities with 16 or fewer persons~~	~~1 per 10~~		~~1 per 10~~		~~1 per 8~~	~~1 per 100~~	~~1 service sink~~
		~~R-4~~	~~Congregate living facilities~~	~~1 per 10~~		~~1 per 10~~		~~1 per 8~~	~~1 per 100~~	~~1 service sink~~

			with 16 or fewer persons					
8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, storehouses and freight depots, low and moderate hazard	1 per 100	1 per 100	See Section 411 of the *International Plumbing Code*	1 per 1,000	1 service sink

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by this code.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient *sleeping units* shall be permitted, provided that each patient *sleeping unit* has direct access to the toilet room and provisions for privacy for the toilet room user are provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.

[P] 2902.1 Minimum number of fixtures. Plumbing fixtures shall be provided in the minimum number as shown in Table 2902.1 based on the actual use of the building or space. Uses not shown in Table 2902.1 shall be considered individually by the code official. The number of occupants shall be determined by this code.

[P] 2902.1.1 Fixture calculations. To determine the *occupant load* of each sex, the total *occupant load* shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the *occupant load* of each sex in accordance with Table 2902.1. Fractional numbers resulting from applying the fixture ratios of Table 2902.1 shall be rounded up to the next whole number. For calculations involving multiple occupancies, such fractional numbers for each occupancy shall first be summed and then rounded up to the next whole number.

> **Exception:** The total *occupant load* shall not be required to be divided in half where *approved* statistical data indicate a distribution of the sexes of other than 50 percent of each sex.

[P] 2902.1.2 Family or assisted-use toilet and bath fixtures. Fixtures located within family or assisted-use toilet and bathing rooms required by Section 1109.2.1 are permitted to be included in the number of required fixtures for either the male or female occupants in assembly and mercantile occupancies.

[P] 2902.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

> **Exceptions:**
> 1. Separate facilities shall not be required for *dwellingunits* and *sleeping units*.
> 2. Separate facilities shall not be required in structures or tenant spaces with a total *occupant load*, including both employees and customers, of 15 or fewer.
> 3. Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 100 or less.

[P] 2902.2.1 Family or assisted-use toilet facilities serving as separate facilities. Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family or assisted-use toilet facilities shall be permitted to serve as the required separate facilities. Family or assisted-use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 2902.4.

[P] 2902.3 Employee and public toilet facilities. Customers, patrons and visitors shall be provided with public toilet facilities in structures and tenant spaces intended for public utilization. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 2902.1 for all users. Employees shall be provided with toilet facilities in all occupancies. Employee toilet facilities shall be either separate or combined employee and public toilet facilities.

> **Exception:** Public toilet facilities shall not be required in:
> 1. Open or enclosed parking garages where there are no parking attendants.
> 2. Structures and tenant spaces intended for quick transactions, including takeout, pickup and drop-off, having a public access area less than or equal to 300 square feet (28 m^2).

[P] 2902.3.1 Access. The route to the public toilet facilities required by Section 2902.3 shall not pass through kitchens, storage rooms or closets. Access to the required facilities shall be from within the building or from the exterior of the building. Routes shall comply with the accessibility requirements of this code. The public shall have access to the required toilet facilities at all times that the building is occupied.

[P] 2902.3.2 Location of toilet facilities in occupancies other than malls. In occupancies other than covered and open mall buildings, the required public and employee toilet facilities shall be located not more than one *story* above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

~~**Exception:** The location and maximum distances of travel to required employee facilities in factory and industrial occupancies are permitted to exceed that required by this section, provided that the location and maximum distance of travel are *approved*.~~

~~**[P] 2902.3.3 Location of toilet facilities in malls.** In covered and open mall buildings, the required public and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 300 feet (91 mm). In mall buildings, the required facilities shall be based on total square footage (m^2) within a covered mall building or within the perimeter line of an open mall building, and facilities shall be installed in each individual store or in a central toilet area located in accordance with this section. The maximum distance of travel to central toilet facilities in mall buildings shall be measured from the main entrance of any store or tenant space. In mall buildings, where employees' toilet facilities are not provided in the individual store, the maximum distance of travel shall be measured from the employees' work area of the store or tenant space.~~

~~**[P] 2902.3.4 Pay facilities.** Where pay facilities are installed, such facilities shall be in excess of the required minimum facilities. Required facilities shall be free of charge.~~

~~**[P] 2902.3.5 Door locking.** Where a toilet room is provided for the use of multiple occupants, the egress door for the room shall not be lockable from the inside of the room. This section does not apply to family or assisted-use toilet rooms.~~

~~**[P] 2902.3.6 Prohibited toilet room location.** Toilet rooms shall not open directly into a room used for the preparation of food for service to the public.~~

~~**[P] 2902.4 Signage.** Required public facilities shall be provided with signs that designate the sex as required by Section 2902.2. Signs shall be readily visible and located near the entrance to each toilet facility. Signs for accessible toilet facilities shall comply with Section 1111.~~

~~**[P] 2902.4.1 Directional signage.** Directional signage indicating the route to the required public toilet facilities shall be posted in a lobby, corridor, aisle or similar space, such that the sign can be readily seen from the main entrance to the building or tenant space.~~

~~**[P] 2902.5 Drinking fountain location.** Drinking fountains shall not be required to be located in individual tenant spaces provided that public drinking fountains are located within a distance of travel of 500 feet (152 m) of the most remote location in the tenant space and not more than one story above or below the tenant space. Where the tenant space is in a covered or open mall, such distance shall not exceed 300 feet (91 440 mm). Drinking fountains shall be located on an accessible route.~~

~~**[P] 2902.6 Small occupancies.** Drinking fountains shall not be required for an occupant load of 15 or fewer.~~

Reason: Chapter 29 is merely a reprint of specific sections out of the International Plumbing Code. There is no justification for reprinting verbiage from another code into the Building Code unless the language is specifically a building code item such as masonry fireplaces as referenced in Chapter 28. Instead, allow the charging statement in 2901 to direct the code official to the proper code or codes as done in Chapter 28 for Mechanical Systems.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction as it is not adding additional code requirements it is merely directing the proponent to the correct code.

Analysis: This code change proposal addresses the scope and application of the International Building Code, Chapter 29. The action taken by the IBC-General Committee on this proposal coupled with the final action taken at the 2015 Public Comment Hearings and subsequent online consensus vote will be limited to an advisory recommendation to the ICC Board of Directors who will determine the final disposition on this proposed change in accordance with Section 1.3 of CP 28 which stipulates that the Board determines the scope of the I-Codes.

G193-15 : 2902-SNYDER4424

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: Toilet room requirements and the required number of plumbing fixtures are building design issues and, as such, this information should remain in the building code. Furthermore, the required number of plumbing fixtures are based on occupant load and the occupant load is also addressed in the building code.

Assembly Action **:** None

Individual Consideration Agenda

Public Comment 1:

Proponent : **Janine Snyder, City of Thornton, Colorado, representing Colorado Association of Plumbing & Mechanical Officials, CAPMO (Janine.Snyder@cityofthornton.net) requests Approve as Modified by this Public Comment.**

Modify as Follows:

2015 International Building Code

SECTION 2901 GENERAL

[P] 2901.1 Scope. The provisions of this chapter and the *International Plumbing Code* shall govern the erection, installation, *alteration*, repairs, relocation, replacement, addition to, use or maintenance of plumbing equipment and systems. Toilet and bathing rooms shall be constructed in accordance with Section 1210. Plumbing systems and equipment shall be constructed, installed and maintained in accordance with the *International Plumbing Code*. Private sewage disposal systems shall conform to the *International Private Sewage*

Disposal Code

Commenter's Reason: Chapter 29 is merely a reprint of specific sections out of the International Plumbing Code. There is no justification for reprinting verbiage from another code into the
Building Code unless the language is specifically a building code item such as masonry fireplaces as referenced in Chapter 28. Instead, allow the charging statement in 2901 to direct the code official to the proper code or codes as done in Chapter 28 for Mechanical Systems. The design provisions in the Mechanical Code for mechanical ventilation for example are also based on occupant load calculations like plumbing fixture counts however, those provisions are not reprinted in the International Building Code.

Analysis: As noted above, this code change proposal addresses the scope and application of the International Building Code, Chapter 29. The action taken by the IBC-General Committee on this proposal coupled with the final action taken at the 2015 Public Comment Hearings and subsequent online consensus vote will be limited to an advisory recommendation to the ICC Board of Directors who will determine the final disposition on this proposed change in accordance with Section 1.3 of CP 28 which stipulates that the Board determines the scope of the I-Codes.

G193-15

G195-15
3001.2 (New)

Proposed Change as Submitted

Proponent: Andrew Cid, representing Private Citizen for The Initiative for Emergency Elevator Communication Systems for the Deaf, Hard of Hearing and Speech Impaired (andycid99@gmail.com)

2015 International Building Code

Add new text as follows:

3001.2 Emergency elevator communication systems for the deaf, hard of hearing and speech impaired An emergency two-way communication system shall be provided that:

1. Is a visual text-based and a video-based live interactive system,
2. Is fully accessible by the deaf and hard of hearing and speech impaired, and
3. Is located between the elevator car and the local emergency authorities at a point outside of the hoistway.

Reason: Reason for Addition / Change to the Language of IBC 3001.2:
The addition of the terms "visual, text-based and video-based live interactive communication systems" is strongly recommended to emphasize the need for totally accessible communication in elevators between local government emergency authorities and individuals who are: Deaf, Hard of Hearing, and Speech Impaired. This type of comunication system is long overdue and strongly recommended for installation and retrofit into public elevators in existing buildings and for new construction. A similar proposal was considered by the A117.1 Standards Committee in 2014, but not approved. The IBC and IEBC should take the lead on this topic and establish this requirement that is needed by our communities..

Cost Impact: Will not increase the cost of construction
Cost Impact - The cost impact, to a recommended 70% of the existing building inventory for public and commercial buildings that are three (3) stories or higher with elevators, is expected to be negligible or minimal to the building owner / operator. Any costs incurred is anticipated to be alleviated wth the use of various incentives such as tax write offs for complying with new accessibility standards. In addition, for new construction, it is expected that there will be no significant additional costs involved because it will be built into the design / build. For existing buildings, the estimated cost for such a system is approximately $2,500. For new construction, the system will cost approximately $5,000.

G195-15 : 3001.2 (New)-CID3932

Public Hearing Results

Committee Action: **Approved as Modified**

Modification:

3001.2 Emergency elevator communication systems for the deaf, hard of hearing and speech impaired. An emergency two-way communication system shall be provided that:

1. Is a visual and text-based and a video-based 24/7 live interactive system~~,~~.
2. Is fully accessible by the: deaf and hard of hearing ~~and~~, the speech impaired, ~~the visually impaired,~~ and shall include voice-only options for hearing individuals.
3. ~~Is located between the elevator car~~The ability to communicate with emergency personnel utilizing existing video conferencing technology,~~andthe local emergency authorities at a point outside of the hoistway~~chat / text software, or other approved technology.

Committee Reason: This belongs in the code. A significant part of the population is serviced by this proposal where currently there is a void. Current technologies should be able to be readily adapted to meet the requirements of this proposal. The committee approved modifications are intended to provide more flexibility and options for manufacturers and for compliance.

Assembly Motion: **Disapprove**
Online Vote Results: **Successful**
Support: 69.77% (217) Oppose: 30.23% (94)
Assembly Action : **Disapproved**

Individual Consideration Agenda

Public Comment 1:

Proponent : karen francis, representing self (karenfrancis99@gmail.com) requests Approve as Modified by Committee.

Commenter's Reason: I fully support proposal # IBC-G-G195-15 as modified by the committee by CID 3 because, as an individual who is severely hard of hearing, I feel this proposal is long overdue and this is a life / safety issue that needs to be addressed as soon as possible. The technology exists so there is no reason to put this off any longer.

Public Comment 2:

Proponent : Michael Trentadue, VTCSecure, representing VTCSecure requests Approve as Modified by Committee.

Commenter's Reason: I am in support that elevators should contain fully accessible emergency communication systems for the Deaf & Hard of Hearing Communities. Video Relay service for the Deaf and Hard of Hearing has been around for almost two decades. It is a huge safety risk not having a way for the Deaf and Hard of Hearing communities to call for help.

Public Comment 3:

Proponent : Andrew Cid, representing self (andycid99@gmail.com) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

3001.2 Emergency elevator communication systems ~~for the deaf, hard of hearing and speech impaired~~ . ~~An~~ Where provided in elevators, emergency two-way communication ~~system~~ systems shall provide video, audio, and text options for live interactive communication between elevator occupants and responding personnel. The video, audio, and text communications shall be ~~provided that:~~

~~1. Is a visual text-based and a video-based live interactive system,~~
~~2. Is fully accessible by~~ operational during the ~~deaf and hard of hearing and speech impaired, and~~
~~3. Is located between~~ hours the ~~elevator car and the local~~ emergency ~~authorities at a point outside of the hoistway.~~

communications system is operational.

Commenter's Reason: G 195-15 was approved by the IgCC Committee as modified. The Committee Reason is as follows:
"This belongs in the code. A significant part of the population is serviced by this proposal where currently there is a void. Current technologies should be able to be readily adapted to meet the requirements of this proposal. The committee approved modifications are intended to provide more flexibility and options for manufacturers and for compliance."

However, for the 07/17/2015 due date, I am submitting this new public comment to the ICC and IBC, as owner of the previously approved, as modified, proposed code change. The proposed public comment is a simplification and clarification.

The amended wording offers a much more simplified and bullet-proof version to the previously approved version. This code change proposal offers full accessibility to all, not just the hearing impaired. The aim of this version is to clarify in very simple terms what is needed in the code. This code change is strongly recommended to emphasize the need for fully accessible communication in elevators between first responders and entrapped individuals who cannot use the current auditory systems that are present in all elevators.

The IBC and ICC should take the lead on this and permit the code change, approved, as modified, per IBC-G 195-15 CID 3, dated 4/25/15, and per this Public Comment submission, dated 07/17/2015. There are ample and substantive reasons to pass

this code.

In the spirit of the 25th anniversary of the ADA, the time is now. Many changes have occurred in the environment making buildings accessible for many people that otherwise may not have been able to participate in what America offers its citizens and guests (visitors). The ADA has provided access to the buildings, so why not further this idea of having people become active participants to also include the advances in technology that is now commercially available, to be included in elevators? Let's start implementing the available technology into elevators, for the 48 million deaf and hard of hearing people that use elevators every day. A significant portion of the U.S. population (almost 1/6 of the total U.S. population) will definitely benefit from this code change. I am profoundly Deaf with a dB loss of 110, so this affects me personally. But this is not about me. This is about you, your family, friends, relatives, colleagues, and 48 million other individuals who cannot use the present auditory communication systems in elevators. I gain nothing from this, financial or otherwise, except for equal emergency communication access in elevators. This is all about equal access for everyone in mainstream society. Please note that there are some opponents in industry who are resistant to change and would like others to believe that this code change is not doable, too expensive, not needed, or the technology does not exist. I am here to say that those claims are a simple and resounding "not true". The technology (there are numerous video technology applications and options already available in the commercial marketplace) has been in existence for decades, is entirely affordable and doable, and this is direly needed.

Cost Impact - The cost impact is expected to be negligible or minimal. In new construction, it is expected that the estimated cost for such a system is, on the lower end, of an estimate of approximately $250 to $1,000.

Thank you for your support !!

Public Comment 4:

Proponent : Carl Wren, representing City of Austin, Texas (carl.wren@austintexas.gov) requests Approve as Modified by this Public Comment.

Further Modify as Follows:

2015 International Building Code

3001.2 Emergency elevator communication systems for the deaf, hard of hearing and speech impaired An emergency two-way communication system shall be provided that~~:~~

~~1. Is~~ is a visual text-based and a video-based live interactive system~~,~~
~~2.~~ ~~Is~~ The system shall be fully accessible by the deaf and hard of hearing and speech impaired~~, and~~
~~3.~~ ~~Is located between~~ Upon the ~~elevator car and~~ arrival of emergency response personnel, the system shall provide the ability to communicate directly with local emergency ~~authorities~~ response personnel at a point outside of the hoistway.

Where approved by the fire code official or fire chief and the building code official, communication shall be permitted to be provided using other technologies such as video conferencing, chat/text software, or other equipment.

Commenter's Reason: The proponent of this comment agrees with the committee that this type of requirement belongs in the building code and further agrees with the original proponent of the code change that this requirement is long overdue. The public comment adds flexibility for the code official while retaining the intent of the proponent of the original code change proposal. By adding more flexible language, there should be room for the industry to explore and find the best and most cost effective solutions. It is hoped that my fellow members of the ICC as well as the elevator industry will be proactive in response to this request for the inclusion of safety equipment for a very patient group that is a part of all of our communities.

Public Comment 5:

Proponent : Assembly Action requests Disapprove.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Disapprove was successful by a vote of 69.77% (217) to 30.23% (94) by eligible members online during the period of May 14 - May 28, 2015.

Public Comment 6:

Proponent : Kevin Brinkman, representing National Elevator Industry, Inc. (klbrinkman@neii.org) requests Disapprove.

Commenter's Reason: The National Elevator Industry, Inc. (*NEII*®) has a strong history of supporting changes that improve safety and increase accessibility for individuals with disabilities, but we cannot support this change for several reasons as outlined below. In addition, *NEII*® supports the comments provide by BOMA.

1. This is a technical proposal which belongs in either ASME A17.1/CSA B44 or in ICC A117, not in the IBC. ICC A117 has reviewed a similar proposal and decided not to include it during its current cycle, not because it was not needed or did not belong in that standard, but because technology was not readily available and the specifications were not clear. They recommended that it be reviewed in conjunction with ASME (as opposed to the building code).
2. As written, this proposal would actually conflict with the requirements currently in ASME A17.1/CSA B44, Section 2.27.1.
3. The technology required is not readily available today for elevators and the proposal is not clear on the actual requirements because there are no Standards for the design and specifications, testing, approval, and inspection of the proposed device.
4. Proposed requirement 3001.2(3) is unclear.
5. The proponent of this change has mentioned technology that would utilize a vandal proof tablet, Ethernet cable, a custom app, and an altimeter.
    1. The requirements for a "vandal proof" tablet are not defined and attempts to make a tablet vandal proof will likely render it unusable
    2. Ethernet cable is not available in elevator traveling cables and cannot be added because it would be in violation of NFPA 70 National Electric Code
    3. The custom app is not currently available and there is no criteria provided to ensure this app would work with all devices
    4. It is not clear who would provide the custom app
    5. The purpose of an altimeter is not clear
6. As noted in the BOMA comment, the lack of a reference standards to ensure uniform design and function, may actually reduce the usability and

effectiveness of the systems.

7. Elevators typically have an expected life of 20 or more years. Communication technology evolves at a much faster rate than the replacement of elevator systems. Communication system technology in elevators will be based on technology available at the time of installation and will become obsolete. The use of personal hand held devices would be more effective for the persons who need special features. (Please see attached document "NEII Public Comment G195-15 Additional Information").
8. It is not clear where these features would be located. Elevator car operating panels are already limited on location and features and room is not available to add other significant sized devices or features.
9. It will increase the cost of construction, operation, and maintenance.
10. Calls do not go to the local fire department or other emergency personnel. Typically, calls are directed to a national call center and local emergency services are alerted if necessary. The use of technology associated with personal hand held devices and that employed by elevator call centers could support a more effective system.
11. ASME A17.1/CSA B44 requires a two-way communication means that includes a visual signal to indicate when the call has been received at the call center. The code also requires a daily operational check by an automated monitoring system, which provides an audible and visual warning when the system is not functioning properly.

Public Comment 7:

Proponent : Steven Orlowski, representing Building Owners and Managers Association, International (sorlowski@boma.org) requests Disapprove.

Commenter's Reason: BOMA agrees with the proponent that the code needs to address the emergency communication needs for individuals who are deaf, hard of hearing or speech impaired. However, as written BOMA cannot support this code change. The language approved by the committee does not provide the guidance necessary for designers, building owners and code enforcement officials to know what would be an approved device and more importantly, how these devices are supposed to function. When the code requires any piece of hardware or system to be installed, the code relies on referenced standards to ensure proper application and installation. Currently, there are no product standards that code officials and building owners can use to indicate what type of visual/text-based/video-based devices would be acceptable, who will be monitoring/receiving the communication and what type uninterrupted and/or stand by power would be required. Neither NFPA 72 Fire Alarms and Signaling code nor the ANSI/ASME A17.1 Safety Code for Elevators and Escalators address these devices. Not having a referenced product standard to explain what these devices are or how they should function was one of the reasons the A117.1 Accessible and Usable Buildings and Facilities committee disapproved a similar proposal this past cycle. Lacking any guidance from a product standard will result in designers, building owners, and code officials installing devices that may prove to be ineffective or unreliable during a real emergency. BOMA encourages the final assembly to disapprove the code change and allow industry to develop a product standard for two-way emergency communication device for the purpose of assisting the deaf/hard of hearing or speech impaired, that will clearly define the performance, notification and transmission of these critical communication devices.

G200-15
3006.2

Proposed Change as Submitted

Proponent : Carl Baldassarra, P.E., FSFPA, P.E., FSFPE, Chair, ICC Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

3006.2 Hoistway opening protection required. Elevator hoistway door openings shall be protected in accordance with Section 3006.3 where ~~an~~ the elevator ~~hoistway~~ is required to be located in a shaft enclosure, connects more than three stories~~, is required to be enclosed within a shaft enclosure in accordance with Section 712.1.1~~ and where any of the following conditions ~~apply~~ exist

1. The elevator hoistway exceeds 420 feet in height.
2~~1~~. The building is not ~~protected~~ equipped throughout with an *automatic sprinkler system* ~~in accordance with Section 903.3.1.1 or 903.3.1.2.~~
3~~2~~. The building contains a Group I-1 Condition 2 occupancy.
4~~3~~. The building contains a Group I-2 occupancy.
5~~4~~. The building contains a Group I-3 occupancy~~.~~
~~5. The building is a high rise and the elevator hoistway is more than 75 feet (22 860 mm) in height. The height of the hoistway shall be measured from the lowest floor to the highest floor of the floors served by the hoistway.~~

Exceptions:

1. Protection of elevator hoistway door openings is not required where the elevator serves only open parking garages in accordance with Section 406.5.
2. Protection of elevator hoistway door openings is not required at the level(s) of exit discharge, provided the level(s) of exit discharge is equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. Enclosed elevator lobbies and protection of elevator hoistway door openings are not required on levels where the elevator hoistway opens to the exterior

The height of the hoistway shall be measured from the top of the lowest finished floor to the top of the highest finished floor of the floors served by the hoistway.

The height of elevator hoistways sharing a common atmosphere by elevator door openings at a common floor or by openings between hoistways shall be measured from the top of the lowest finished floor to the top of the highest finished floor of the floors served by the non separated hoistways.

Reason: This proposal is a follow-up to what was proposed in the 2012 cycle as proposal FS66-12. This version has been updated to work with the new language

found in Section 3006.2 and addresses the reasons for disapproval, including that midrise buildings may not have been equipped throughout with an automatic sprinkler system.
This issue has been viewed very differently throughout the US with many jurisidictions requiring elevator lobbies and many not. The IBC has required these lobbies since the 2000 edition and have always been heavily debated. This debate has been the reason the CTC has been carefully studying this issue. The work that led to FS66-12 included a technical analysis that looked at issues such as stack effect and also looked at the reliability of sprinklers through the use of the fire safety concepts tree. The technical analysis is available at the following link. https://cdpaccess.com/proposal/fileupload/get/280

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Elevator Lobbies Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
If the requirements for elevator lobbies are made less restrictive then the cost of construction would go down.

G200-15 : 3006.2-BALDASSARRA4170

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The study cited in the testimony on the floor as substatiation for this proposal is still underway. It is premature to make a decision on this proposal before the study is completed and adequate technical justification is provided.

Assembly Motion: As Submitted
Online Vote Results: Failed
Support: 21.11% (72) Oppose: 78.89% (269)
Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Carl Baldassarra, P.E., FSFPA, representing Code Technology Committee (CTC@iccsafe.org) requests Approve as Submitted.

Commenter's Reason: This proposal was disapproved at the code action hearings based upon further information from a modeling project being conducted at the University of Texas Austin. A report has been prepared containing the results of

several computer modeling runs examining the need for enclosed elevator lobbies in fully sprinklered buildings where the sprinklers are both operating and failed. These represent the first of a number of scenarios developed by the CTC. A link to the full report is provided here. UT Austin Report . The conclusions excerpted from their report are as follows:

Conclusion

From the current results, some conclusions can be drawn. Compared with previous research[5][6] which considered post-flashover fires with temperature rise of more than 700°C, this study used a single workstation fire of 7MW, which elevates the gas temperature around the elevator lobby by only about 50°C. Thus the fire hazard examined in this report is much smaller than that proposed by others, and the fire-induced stack effect is also smaller. One effect that has not been considered in previous work is the effect of sprinklers. The effects of sprinklers to control the fire were directly considered in this study.

When sprinklers are normally activated, fires can be quickly controlled and suppressed. After the fire is extinguished on the fire floor, the hot environment of the building maintains the fire-induced stack effect in the elevator shafts and transports the smoke to the upper floors. Generally, however, the smoke is less thick than on the fire floor and gradually dissipates.

For an extreme ventilation condition, when the elevator doors are open at the fire floor, significant smoke moves to the upper floors. For such a case, the enclosure of the elevator lobbies significantly delays the smoke spread to the upper floors. When the doors on the enclosing walls are open, the gas temperature and pressure differences are almost 50% of the unenclosed conditions. When the elevator lobbies are separated by closed doors with modeled leakage, the fire barely affects the elevator lobbies, and little smoke is transported to the upper floors.

For the extreme ventilation cases when the elevator doors and windows are open on the fire floor, there are two ways to satisfy the visibility-based fire safety criterion. One is by ensuring the functional operation of the sprinklers during fires, and the other is to enclose the elevator lobbies.

When the elevator doors and windows are closed and a normal building envelope leakage area exists, the smoke generated from the fire floor still affects the upper floors. Although the total mass flow rate for these typically-ventilated cases are relatively smaller than for the more open/extreme cases, the smoke concentration is larger and thus the visibility-based safety criterion still indicates a safety problem. Thus, the fire hazard is nearly the same as the extreme ventilations cases of open windows and elevator doors on the fire floor. The cold weather condition showed a slight increase in the fire hazard, but it is not the governing factor.

Regardless of stack effect, the modeling showed that in a fully sprinklered building where the sprinklers operate the fire is essentially extinguished, produces minimal smoke and tenability is maintained. Full failure of the sprinkler system will result in extensive smoke spread without lobbies but this is a conservative scenario. The IBC includes several provisions to greatly reduce this potential, such as electrical supervision of the system, remote monitoring, and redundant water supply risers and on-site water storage in very tall or seismic zone buildings. It was also noted for the full sprinkler failure scenario that simply having a lobby reduced smoke spread significantly even with a partially open door.
This proposal still requires that lobbies be provided in hoistways exceeding 420 feet in height where stack effect is greater.

Members are encouraged to consider this additional report along with other extensive studies and work by the ICC Code Technology Committee (CTC) in support of this change, which can ve found at the link below. The CYC has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes

re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Elevator Lobbies Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

http://media.iccsafe.org/cdpACCESS/docs/SmokeSpread-HighRise.pdf

G200-15

G204-15

3007.3, 3008.3

Proposed Change as Submitted

Proponent : Carl Baldassarra, P.E., FSFPA, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technologies Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

3007.3 Water protection. ~~An *approved* method to prevent water~~ Water from the operation of an automatic sprinkler system outside the enclosed lobby shall be prevented from infiltrating into the hoistway enclosure ~~from the operation of the *automatic sprinkler system* outside the enclosed fire service access elevator lobby shall be provided.~~ in accordance with an approved method.

3008.3 Water protection. ~~An *approved* method to prevent water~~ Water from the operation of an automatic sprinkler system outside the enclosed lobby shall be prevented from infiltrating into the hoistway enclosure ~~from the operation of the *automatic sprinkler system* outside the enclosed occupant evacuation elevator lobby shall be provided.~~ in accordance with an approved method.

Reason: As currently written it is often misinterpreted that water protection should be provided from sprinklers activating within the enclosed lobby itself. In fact, this provision is specifically looking only at sprinkler activation outside the lobby. If a sprinkler was activated within the lobby itself then there are larger concerns about the safety of the elevator operations. Also if sprinklers have activated within the lobby the lobby smoke detection would have also activated and recalled the elevators to the lobby. This section is not intended to include fire fighter hose stream.
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the WTC Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at:
http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is merely a clarification. It may be a savings if it was interpreted to include the activation of an automatic sprinkler system within the enclosed elevator lobby.

G204-15 : 3007.3-BALDASSARRA4191

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: This is a necessary clarification to the code that addresses items that are commonly misinterpreted.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Jonathan Siu, City of Seattle Department of Planning & Development, representing City of Seattle Department of Planning & Development (jon.siu@seattle.gov) requests Disapprove.

Commenter's Reason: We are recommending this proposed code change be disapproved because the proposal is unnecessary, and it includes an unenforceable performance standard.

The reason statement for this proposal asserts that the current text can be misinterpreted to require the heads in the lobby to be the source of the water that is being dealt with in this section. However, we do not see how the current text can be interpreted in that way. That is, it clearly says the source of the water is not the heads in the elevator lobby, but the heads outside the lobby ("...from the operation of the automatic sprinkler system outside the enclosed fire service access elevator lobby...." [emphasis ours]) So the premise for the proposal doesn't seem to support the need for a change. In addition, the proposed text does not increase clarity on the issue, since it uses terminology that is substantially the same as the 2015 code.

Regarding the second point, the 2015 IBC text says there needs to be an approved method to prevent the water from going into the hoistway. We read this to say we're approving a design that is supposed to prevent it. In reality, however, the system may not perform as designed in a real event for any number of reasons, including an event that exceeds the design assumptions--there is always some probability of failure. We hope the probability is very small, but it's not zero.

The proposed text says water "shall be prevented" from getting into the hoistway. No ifs, ands, or buts. This is creating an absolute performance standard. That is, this means that if the system did not perform in a real event as specified, i.e., water from a sprinkler head outside the elevator lobby got into the hoistway for whatever reason, there was a code violation, and it becomes a liability issue for the designer of the system. This is akin to saying a building that collapses for any reason must not have conformed to the code and the engineer is liable, even if the event was something beyond what the structure was designed for. Note also that compliance with this provision as written cannot be verified in any practical manner at the time of C of O, so verification will only happen when an actual event happens. (Finding a building owner who would be willing to run a test of the system prior to C of O by turning on the sprinklers in the newly-constructed building and letting them run for an unspecified amount of time to test the drainage system is a very doubtful proposition). For these reasons, the proposed language is unenforceable, and the proposal should be disapproved.

G204-15

G206-15

3007.8, 3007.8.1 (New)

Proposed Change as Submitted

Proponent : Dave Frable, US General Services Administration, representing US General Services Administration

2015 International Building Code

Revise as follows:

3007.8 Electrical power. ~~The following features serving each fire service access elevator shall be supplied by both~~ Sufficient normal ~~power~~ and Type 60/Class ~~2~~ X/Level 1 standby power~~: 1. Elevator~~ shall be provided to simultaneously operate all designated fire service access elevators and their associated elevator equipment~~.2. Elevator~~ , elevator hoistway lighting~~.3.*Ventilation*~~, elevator car lighting, and the ventilation and cooling equipment for their respective elevator machine rooms, control rooms, machine spaces and control spaces. ~~4. Elevator car lighting.~~

Add new text as follows:

3007.8.1 Standby power evaluation and analysis An evaluation and analysis shall be provided to determine the appropriate minimum time, in hours, that standby power must be provided following loss or failure of the normal power supply for the fire service access elevators to operate for the specific building and application. The subject evaluation and analysis shall be prepared by the responsible registered design professional and shall be approved prior to installation.

Reason: Currently as written all designated fire service access elevators must comply with Section 3007.8 which requires 2 hours of standby power for each designated fire service access elevator and associated equipment simultaneously. In many 120 foot tall buildings across the country, the current 2-hour standby power requirement becomes costly and is likely much more conservative than necessary. The intent of this code change is to provide a more reasonable approach for providing standby power in lieu of using an arbitrary/absolute value of 2-hours. NFPA 110, Standard for Emergency and Standby Power Systems permits the use of Class X systems (Other time, in hours, as required by the application). Please note the Class defines the minimum time, in hours, for which the standby power system is designed to operate at its rated load without being refueled or recharged.

This proposal would permit the Building Official to approve an evaluation and analysis prepared by the registered design professions for determining the appropriate minimum time, in hours, that standby power must be provided for the respective building. In addition, it should also be pointed out that the 2-hour standby power requirement is also not consistent with reviews of the WTC bombing in 1996 that concluded buildings should not take longer than 1-hour to evacuate.

Cost Impact: Will not increase the cost of construction
This proposal will decrease the cost of construction as it will possibly reduce the size of the emergency power supply system providing standby power as well as determing the appropriate timeframe necessary for providing standby power for the operation of the fire service access elevators during an emergency.

G206-15 : 3007.8-FRABLE5021

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There are some portions of this proposal that may be valid. However, there is a common misunerstanding that fire service elevators are intneded to transfer one team of firefighters. The real object is to stay operational for the entire duration of the fire in order to move firefighting equipment and injured firefighters, etc.

The proposal does not clearly state that the approval is intended to be by the fire service.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Dave Frable, representing US General Services Administration (dave.frable@gsa.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

3007.8.1 Standby power. Standby power loads for fire service access elevators shall be a minimum of Type 60/Class 2/Level 1 standby power.

> **Exception:** Where approved ty the fire official, the Class that defines the minimum time, in hours, for the duration of standby power is allowed to be determined by a standby power evaluation and analysis that complies with Section 3008.1.1.

~~**3007.8.1**~~ **3007.8.1.1 Standby power evaluation and analysis.** *No change to text.*

Commenter's Reason: Currently as written all designated fire service access elevators must comply with Section 3007.8 which requires 2 hours of standby power to ensure these elevators and associated equipment are operational for the entire duration of the fire. However, in many 120 foot tall buildings (approximately 10 stories) across the country, the current 2-hour standby power requirement becomes costly and is likely much more conservative than necessary.
The intent of this code change is to provide an alternative that would permit the fire chief to approve a standby power evaluation and analysis to determine the appropriate period of time, that standby power must be provided following loss or failure of the normal power supply to sustain fire service operations for the specific building and application.

We believe this approach is a reasonable alternative for demining the minimum standby power duration for fire service access elevators than utilizing the absolute value of 2 hours.

G206-15

G209-15

202 (New), 3001.1 (New), 3002 (New), 3003 (New), 3004 (New), 3005 (New), 3006 (New), 3007 (New), 3008 (New). CHAPTER 35

Proposed Change as Submitted

Proponent : Jani Palmer, Environmental Protection Agency, representing United States Environmental Protection Agency

2015 International Building Code

Add new text as follows:

SECTION 202
DEFINITIONS

ACTIVE SOIL-DEPRESSURIZATION SYSTEM. A system designed to lower the air pressure in the soil beneath a building, relative to the atmospheric pressure immediately above ground level, by continuously withdrawing air from below a membrane covering the soil. An active soil-depressurization system consists of a pressure distribution manifold, one or more radon vents, an operating fan and a fan-failure indicator.

RADON. A naturally occuring, chemically inert, radioactive gas. It is part of the uranium-238 decay series. For purposes of this code, radon applies to radon-222; thus, it is the direct decay product of radium-226.

SOIL GAS RETARDER MEMBRANE. A durable, flexible and non-deteriorating material, installed in a continuous sheet to retard the pressured-driven flow of soil gas through elements of a structure.

CHAPTER
30 RADON REDUCTION SYSTEMS

SECTION 3001
GENERAL

3001.1 Intent. The provisions of this chapter shall govern the design, construction and testing of radon reduction systems. These systems are intended to limit radon entry points through floors, walls and foundations and to limit the mechanicl depressurization of buildings, which can enhance radon entry.

3001.2 Required. This Chapter shall be mandatory for buildings of Group E (Educational) occupancy that are located in areas of high radon potential as determined by Table AF101(1) High Radon-Potential (Zone 1) Counties in Table 3001.2.

Table 3001.2
High Radon-potential, Zone 1, counties.

SECTION 3002

SOIL GAS RETARDER MEMBRANE.

3002.1 Membrane materials. Acceptable soil gas retarder membranes shall consist of a single layer of polyethylene, not less than 0.006-inch (6 mils) thick with a maximum perm rating of 0.3. Polyvinyl chloride (PVC), ethylene diene ter polymer (EPDM), neoprene or other non-deteriorating, non-porous material may be used instead of polyethylene, provide the installed thickness of the alternate material has greater or equal tensile strength, resistance to water-vapor transmission, resistance to puncture, and resistance to deterioration determined in accordance with ASTM E 154. The membrane shall be placed to minimize seams and to cover all of the soil below the building floor.

3002.2 Tape. Tape used to install the soil gas retarder shall have a minimum width of 2 inches and shall be pressure sensitive vinyl or other non-deteriorating pressure sensitive tape compatible with the surfaces being joined.

3002.3 Mastic. Mastic used to join sections of membrane to one another or to elements of the building foundation, or to seal penetrations in the membrane of the soil gas retarder shall be compatible with the surfaces being joined, and shall be installed in accordance wtih the manufaturer's recommendations for the materials, surface conditions and temperatures involved.

3002.4 Installation. The soil gass retarder shall be placed under the entire soil contact area of the floor in a manner than minimizes the required number of joints and seams. Care shall be taken to prevent damage to the membrance during the construction process. In buildings incorporating the sub-slab portions of an active soil-depressurization system, the soil gas retarder shall also serve to prevent mastic, cement or other materials from blocking the pressure distribution manifolds or pits.

3002.5 Seams Seams between portions of the soil gas retarder shall maintain not less than 12 inches of lap when concrete is placed. The membrane shall be secured with tape or mastic or by using larger unsecured overlaps prior to placing concrete.

3002.6 Slab edges and joints The soil gas retarder shall fully cover the soil beneath the building floor. Where the slab edge is cast against a foundation wall or grade beam, the soil gas retarder shall contact the foundation element, and shall not extend vertically into the slab more than one half of of the slab thickness.

3002.7 Penetrations At all points where pipes, conduits, reinforcing bars or other objects pass through the soil gas retarder membrane, the membrane shall be fitted to within one-half inch of the penetration and sealed to the penetration. Where penetrations occur within 24 inches of a soil-depressurization system mat or pit, the gap between the penetrating object and the soil gas retarder shall be taped closed. When necessary to meet this requirement a second layer of the membrane, cut so as to provide not less than a 12-inch lap on all sides, shall be placed over the object and shall be sealed to the soil gas retarder with a continuous band of tape.

3002.8 Punctures, cuts and tears All damaged portions of the soil gas retarder membrane within 24 inches of any portion of a soil-depressurization

system mat or pit shall be sealed with tape or with a patch made from the same or compatible material, cut so as to provide not less than a 12-inch lap from any opening, and taped continuously about its perimeter.

3002.9 Mastics Mastic used to join sections of soil gas retarder to one another or to elements of the building foundation, or to seal penetrations in the soil gas retarder, shall be located not less than 24 inches from any portion of the soil-depressurization system mat or pit. Tape shall be used to seal those portions of the soil gas retarder membrane that are within 24 inches of a soil-depressurization system mat or pit.

3002.10 Repairs Where portions of an existing concrete slab-on-grade construction have been removed and are about to be replaced, the soil gas retarder membrane shall be carefully fitted to the opening, and all openings between the membrane and the soil shall be closed with tape or mastic. Special care shall be exercised to assure that mastic does not enter any portion of the soil-depressurization system that is located beneath the slab-on-grade construction.

SECTION 3003
CONCRETE FLOORS IN CONTACT WITH SOIL GAS

3003.1 General Concrete slab-on-grade construction that is supported on soil or spanning over exposed soil, and that is used as a floor for conditioned space or enclosed spaces that are adjacent to or are connected to conditioned spaces, shall be constructed in accordance with local codes for mix design, slump and workability, hot weather placing and finishing and curing.

3003.2 Concrete for slab-on-grade construction. Concrete for slab-on-grade construction that is in contact with soil gas shall be in accordance wtih Sections 3003.2.1 and 3003.2.2.

3003.2.1 Compressive strength Design strength for concrete mixes used in the construction of slab-on-grade floors shall be not less than 3,000 psi at 28 days and shall be designed, delivered and placed in accordance with ASTM C 94.

3003.2.2 Shrinkage sontrol Concrete mix design, placing practices, and curing practices prescribed shall be in accordance with this section. Concrete slab-on-grade or slabs spanning above exposed soil shall be designed, placed, finished and cured in accordance with this code.

3003.3 Sealing of construction joints, penetrations, cracks and other connections The sealing of construction joints, penetrations, cracks and other connections shall be in accordance wtih Sections 3003.3.1 through 3003.3.4.

3003.3.1 Sealants Sealants shall be selected and installed in compliance with ASTM C 920 and ASTM C 1193.

1. Sealant materials shall be compatible with the materials they join, including curing compounds and admixtures, and with materials that will be applied over them, including floor finishing materials.
2. Field-molded sealants shall be installed in sealant reservoirs proportioned, cleaned of laitance and prepared in accordance with the manufacturer's recommendations. For elastomeric

sealants, this generally requires the installation of a bond breaker or backer rod shall be provided where required by the sealant manufacturer's installation instructions.

3. Where installed sealant is not protected by a finished floor or other protective surface, it shall be suitable to withstand the traffic to which it will be exposed.
4. Waterstops shall be preformed from polyvinyl chloride or other non-corrosive material.

3003.3.2 Joints Joints between sections of concrete floor slabs, between the floor slab and a wall or other vertical surface, and between a section of floor and another object that passes through the slab, shall be sealed to prevent soil gas entry in accordance with the provisions of this section. Joints and portions thereof shall not be covered or rendered inaccessible unless the seal has first been inspected and approved by the building official. Such joints shall be sealed prior to the structure being certified for occupancy.

1. **Butt joints.** Non-bonded butt joints shall be sealed to prevent radon entry using an elastomeric sealant or a waterstop as specified in Section 3003.3.1. The sealant reservoir shall be sufficiently large to prevent failure of the sealant or waterstop and shall not be less than 1/4-inch by 1/4-inch in cross-section
2. **Lap joints**. Non-boned lap joints shall be sealed with either a field-molded or preformed elastomeric sealant or with a flexible waterstop as specified in Section 3003.3.1. The lap joint shall be sufficiently large to prevent failure of the sealant or waterstop, but in no case shall the sealant reservoir be less than 1/2-inch by 1/2-inch in cross-section.
3. **Isolation joints.** Non-boned isolation joints shall be sealed with either a field-molded or preformed elastomeric sealant or with a flexible waterstop as specified in Section 3003.3.1. Isolation joints shall be sufficiently large enough to prevent failure of the sealant or waterstop, and shall be not less than 1/2-inch by 1/2-inch in cross-section.
4. **Control or contraction joints.** In locations where continued movement of the slab portions can be reasonably expected, flexible sealants shall be installed in reservoirs in accordance wtih Section 3003.3.2 Item 2, or a flexible waterstop shall be provided.
5. **Construction joints.** Bonded construction joints shall be sealed to prevent radon entry using either a rigid or an elastomeric sealant or a waterstop in accordance with Section 3003.3.1. Where movement of the joint is not prevented by continuous reinforcing and tie bars, flexible sealants shall be be installed in reservoirs in accordance with Section 3003.3.2 Item 2, or a flexible waterstop shall be provided.

3003.3.3 Cracks Cracks in concrete slabs supported on soil or spanning over exposed soil, that are used as floors for conditioned space or enclosed spaces adjacent to or connected to conditioned spaces, shall be sealed against radon entry in accordance with the provisions of this section and Section 3003.3.1, except that cracks less than 1/16-inch wide that do not meet any of the conditions described in Section 3003.3.3(1), shall not be required to be sealed.

1. Cracks greater than 1/4-inch wide; all cracks that exhibit vertical

displacement; all cracks that connect weakened zones in the slab such as vertical penetrations or re-entrant corners; and, all cracks that cross changes in materials or planes in the structure, shall be sealed with a flexible field-molded elastomeric sealant installed in accordance with Section 3003.3.2, Item 3, for isolation joints.

2. Cracks greater than 1/16-inch wide; that do not meet any of the conditions described in 3003.3.3(1), shall be enlarged to contain a sealant reservoir not less than 1/4-inch by 1/4-inch in cross-section along the entire length of the crack; and shall be sealed with a flexible, field-molded elastomeric sealant installed in accordance with 3003.3.2(1).

3003.3.4 Stakes, pipe penetrations and other small objects Objects that pass through the slab shall be sealed gas tight. A sealant reservoir, appropropriately dimensioned to accommodate any differential movement between the object and the concrete, shall be formed continuously around the objects, and the joint shall be sealed with a field molded elastomeric sealant in accordance with Section 3003.3.2 Item 3 and Section 3003.3.1. Where pipes or other penetrations are separated from the concrete by flexible sleeves, the sleeve shall be removed to provide bonding of the sealant to the object. Where stakes are used to support plumbing, electrical conduits or other objects that will penetrate the slab, the stakes shall be solid, non-porous and resistant to decay, corrosion and rust. Special care shall be taken to avoid honeycombing between multiple or ganged penetrations.

1. Large utility service openings throught the slab shall be sealed gas-tight. For slab-on-grade construction, this shall be accomplished by fully covering the exposed soil with a vapor-retarder membrane, covered to a depth of not less than 1 inch with an elastomeric sealant. Alternatively, the opening shall be closed with an expansive concrete or hydraulic cement to within 1/2 inch of the top of the slab, and the remaining 1/2 inch shall be filled with an elastomeric sealant. Where the opening connects to a crawlspace, the opening shall be closed with sheet metal or other rigid impermeable materials and sealed with an elastomeric sealant compatible with the materials and conditions.
2. For openings made through existing slabs, sealing shall meet the applicable provisions of this section. Where the opening is partially repaired with concrete, any resulting crack shall be sealed in accordance with Section 3003.3.3.
3. Sumps located in habitable portions of a building and connecting to the soil, either directly or through drainage piping, shall be equipped with a gasketed lid. The lid shall be attached so as to provide a gas-tight seal between the sump and the access space above.

SECTION 3004
WALLS IN CONTACT WITH SOIL GAS

3004.1 General Walls separating below-grade conditioned space from the surrounding earth or from a crawlspace or other enclosed space with an exposed earth floor, shall be isolated from the soil by an approved structural barrier as in accordance with Section 3002. Foundation walls consisting of cavity walls, or constructed of hollow masonry products or of any material in

such a way as to create an air-space within the wall, shall be capped as the floor-level of the first finished floor they intersect. The cap shall be either at least 8 inches of solid concrete or concrete filled block, or a cap that provides air-flow resistance at least equal to the adjacent floor. Cracks, honeycombs, joints, ducts, pipes conduit chases or other openings in the wall shall not be allowed to connect soil gas to a conditioned space or to an enclosed space adjacent to or connected to a conditioned space.

3004.2 Materials Walls governed by the provisions of Section 3004 shall be constructed of reinforced concrete, or solid reinforced masonry construction.

3004.3 Waterproofing Walls governed by Section 3004 shall be constructed with a continuous waterproofing membrane applied either

1. To the exterior surface from the top of the footing to not less than 6 inches above the finished grade, or where the wall separates interior space and a crawlspace; or
2. From the top of the footing to the bottom of the floor above.

3004.3.1 Application The waterproofing membrane shall be applied in accordance with this code and shall be sealed to the top of the footing so as to waterproof the joint between the footing and the wall. Where installed in accordance with Section 3004.3 Item 2, the membrane shall be attached to the bottom of the floor above in a manner that fully seals the joint between the floor and wall.

3004.3.2 Utility penetrations Below-grade utility penetrations through walls in partial or full contact with the soil shall be closed and sealed with a sealant in accordance wtih Section 3003.3.1. This seal shall be made on both faces of the wall. Where conduits or ducts do not provide a continuous and gas-tight separation from the soil, the end of the conduit or duct shall be sealed in accordance with Section 3003.3.1 to prevent soil gas entry.

3004.4 Doors and service openings Doors, hatches or removable closures of any kind that can create an opening between the interior and a crawlspace shall be gasketed and equipped with a latch or other permanent fastening device.

SECTION 3005
BUILDINGS WITH CRAWL SPACES

3005.1 General. For the purposes of Section 3005, buildings with crawl spaces shall include all buildings with a floor supported above grade.

3005.1.1 Reinforced concrete floor systems Reinforce concrete floors constructed over crawl spaces shall be in accordance with Section 3003.

3005.1.2 Wood-framed floor systems Wood-framed floors spanning over soil, that are used as floors for conditioned space or enclosed spaces adjacent to or connected to conditioned spaces, shall be constructed in accordance with Section 3005.

3005.2 Materials. Wood-framed floors constructed over a crawl space shall be constructed of APA certified tongue-in-groove plywood, and shall otherwise comply with this code. Oriented structural board shall not be considered to be an acceptable substitue material.

3005.3 **Utility penetrations** Penetrations through the floor shall be fully sealed to the floor structure with a sealant that complies with Section 3003.3.1. Large service openings through the slab shall be sealed gas-tight. Where large openenings are created, sheet metal or other rigid material shall be used in conjunction with sealants to close and seal the openings.

3005.4 **Vertical joints** Vertical joints between the subfloor and foundation wall or the subfloor and any vertical plane of the building that extends from the crawlspace to the top of the subfloor, shall be sealed with a sealant that complies with Section 3003.3.1.

3005.5 **Doors and service openings.** Doors, hatches or removable closures of any kind that have the potential to create an opening in the floor-plane shall be gasketed and equipped with a latch or other permanent fastening device.

3005.6 **Other radon-entry paths** Openings thatconnect a crawlspace and construction cavities, such as the space between wall studs, hollow masonry or precast concrete units, or floor and ceiling planes, shall be closed and sealed in accordance with Section 3003.3.1.

3005.7 **Crawl space ventilation** Crawl Spaces shall be passively ventilated or shall be constructed with an active soil-depressurization system in compliance with Sections 3008 and 3009. No portion of an air-distribution system shall pass through a crawlspace.

3005.7.1 **Required ventilation.** Crawl spaces shall be ventilated by openings through the perimeter wall connecting to the exterior of the foundation. Required vents shall have a combined net free area of not less than 1 square inch in each 1 square foot of crawl space, and shall conform to the following conditions:

1. Openings shall be distributed uniformly around the outside walls of the crawl space.
2. Vents shall be fitted with corrosion- and decay-resistant wire mesh or grilles with openings not less than 1/4 inch nor more than 1/2 inch in size. Vents shall not be fitted with operable louvers, dampers or other closure mechanisms.
3. Plumbing located in a ventilated crawlspace shall be protected from freezing with insulation or heat tape.

3005.7.2 **Prohibited uses.** Crawl spaces shall not be used as an air-duct or plenum or to house a duct or fan that is part of a heating, ventilating or air-conditioning system.

SECTION 3006
SPACE CONDITIONING SYSTEMS AND VENTILATING

3006.1 **General.** This Section limits radon entry points by means of the mechanical depressurizaiton of buildings. Ventilating systems shall be designed in accordance with applicable codes and the provisions of this section for use of outside air of low radon concentration.

3006.2 **Condensate drains.** Joints in condensate piping shall be solvent welded, soldered or otherwise connected in a leak-proof and gat-tight manner. Condensate drains shall be trapped and shall terminate in the building sewer or outside of buildings, at not less than 6 inches above

finished grade. Where the condensate piping penetrates a floor or wall separating enclosed space from the soil or from a crawl space, the penetration shall be sealed in accordance with applicable provisions of Section 3003. Condensate drain piping shall not terminate in a return plenum.

3006.3 Other piping. Where piping penetrates a floor or wall separating enclosed space from the soil or from a crawl space, the penetration shall be sealed in accordance with applicable provisions of Section 3003. Where piping is insullated, the insulation shall be removed at the point of the seal, and the required seal shall be made between the pipe and the building structure. The sealant shall be compatible with the materials and anticipated operating temperatures. Piping shall not terminate in a return plenum.

3006.4 Plumbing and wiring chases. Where piping or wiring is installed in a chase that is at any point in contact with the soil or a crawl space, the chase shall be sealed to the floor or wall where it first enters the structure, in accordance with applicable provisions of Section 3003. Piping contained in such a chase shall be sealed to the chase at the interior plane of that floor or wall. A chase or portion thereof shall not terminate in a return air duct or plenum. Where it is impractical or prohibited by another code to seal wiring into an electrical chase or conduit, the chase shall comply with applicable portions of Section 3003 or the conduit shall be entirely fabricated of gas-tight components and materials.

SECTION 3007
AIR DISTRIBUTION SYSTEMS

3007.1 Air distribution systems. Air ducts, plenums, fan enclosures or fans that are part of a building's heating, ventilating or air-conditioning system shall be completely isolated from the soil gas by a structural barrier complying with this Chapter. Heating, ventilating and air-conditioning systems supplying spaces with floors or walls that are in contact with soil or soil gas shall be designated to minimize air pressure differences and eliminate negative pressures, that cause significant flow of soil gas through the structural barrier and into the building. Return ducts, plenums and air handlers shall not be located in a crawl space.

3007.2 Exhaust fans, hoods, equipment and appliances. For each zone, the required volume of outside ventilation air shall be not less than the combined volume of air capable of being exhausted by all exhaust fans, hoods, equipment and appliances installed in the zone. This amount shall not be reduced by use factors unless devices are wired and switched in a manner that prevents their simultaneous operation.

3007.3 Combustion air ducts. Ducts that provide combustion air to fuei-burning appliances and equipment shall be completely isolated from the soil gas by a structural barrier that complies with the provisions in this Chapter.

SECTION3008
ACTIVE SOIL-DEPRESSURIZATION SYSTEMS

3008.1 General. A soil-depressurization system causes the direction of air flow through any possible failure in the structural barrier to move out of the building and into the depressurization system, therby reducing radon. Soil-depressurization systems shall be installed beneath concrete slabs supported directly on the the soil, or beneath the soil gas retarder

membrane in crawl spaces.

3008.2 Prohibited uses. Soil-depressurization systems components shall not extend beneath areas that are required to be depressurized by other codes for the protection of public health, such as, but not limited to, rooms containing general anesthesia or pathogens. Soil-depressurization systems shall be installed beneath rooms that are required to be depressurized for other reasons, such as, but not limited to, toilets and kitchens.

3008.3 System components. An active soil-depressurization system shall be comprised of the following components: a pressure distribution system porous media or manifolds; a soil cover; one or more vents; a suctio fan; and a system failure indicator.

3008.3.1 Pressure distribution media or manifold. The low-pressure zone shall be extended across the entire area beneath the structure in accordance with the following. Acceptable means of extending the low-pressure zone include, but are not limited to, synthetic ventilation mats, a system of perforated pipe and an air-permeable gravel layer. Different types of pressure distribution media shall be allowed to be used in the same system, provided each complies with the installation requirements of this Chapter. Pressure distribution media must be installed in such a way as to assure that they are never blocked by water.

1. Ventilation mats shall have a soil contact area of not less than 216 square inches per linear foot and provide a cross-section profile of not less than 9 square inches.
2. Perforated pipe that is used to consruct pressure extension manifolds shall be installed directly under the soil cover or in gravel or a similar porous medium that provides an adequate air flow connection between the pipe and the sub-soil and that protects the pipe from becoming blocked by soil.
3. Continuous gravel layers of at least 4-inches thickness are an acceptable pressure distribution medium, provided the completely cover the area of soil to be pressurized.

3008.3.2 Soil cover. In slab-on-grade construction, the soil cover shall consist of the soil gas retarder membrane and the concrete slab. In crawl spaces, the concrete slab shall be allowed to be omitted, provided that the soil-gas retarder membrane will not be subjected to wear and damage due to required maintenance procedures. In all instances, the soil gas retarder membrane shall be fully sealed to the radon vents in accordance with Section 3002.

3008.3.3 Radon vents. Radon vents that carry the soil gas to an area above and away from the building shall be gas-tight and of a material that is in accordance wtih the requirements for plumbing vents in the *International Plumbing Code.*

3008.3.4 Suction fans. Suction fans shall be designed for continuous operation. Fan perfomance shall comply with air flows and operating pressures that are determined by the system design, as determined using estimates from active soil-depressurization air flow models or in accordance with Section 3008.4.2.2.

3008.3.5 Fan failure iIndicator. Soil-depressurization systems shall have

a failure indicator labeled with the words "Radon Reduction System Fan Failure Indicator" mounted so as to be conveniently visible to building occupants. The fan failure indicator shall be either a visual device consisting of a light not less than 1/5 footcandle at the floor level, or an alarm that produces a minimum of 60 db audible signal. The indicator shall be made to operate automatically when the pressure inside any radon vent pipe fitted with an operable fan is less than 0.40-inch water column (100 pascals) lower than the air pressure inside the building.

3008.4 Active soil-depressurization system design requirements.

3008.4.1 General. Active soil-depressurization systems shall be designed to be capable of maintaining a 0.02-inch (5-pascal) pressure differential over 90 percent of the slab or crawlspace.

3008.4.2 Ventilation mat systems. Ventilation mat systems shall be designed to be capable of maintaining a 5-pascal pressure differential over 90 percent of the slab area or in accordance with the *International Mechanical Code* for equipment and system sizing.

3008.4.2.1 Installation. Radon ventilation mats shall be installed immediately prior to placing the soil gas retarder membrane. Mats shall be arranged in a pattern that provides not less than two possible flow paths from any points on the mat to a radon vent pipe. Mats shall be placed with the filter material facing the compacted soil. Where sections of the mat join, a section of filter material not less than 6-inches long at the end of one of the mats shall be loosened and the other piece of mat shall be inserted between the loosened filter material and the first section of mat. The mats shall be pressed tightly together at this lap and mechanically attached together with hog rings or metal pins driven through the mat and into the soil so as not to puncture or tear the soil gas retarder membrane. When properly joined, the filter material will extend continuously across the joint and the full cross-sectional area of the mat shall be preserved across the splice.

3008.4.2.2 Alternate compliance method. Systems installed on sand or granular soil shall demonstrate compliance by meeting all of the following design limits:

1. Mats shall be located at least 15 feet and not more than 25 feet from the outside edge of the floor.
2. Mats shall be spaced not more than 50 feet on center.
3. No portion of a building floor shall be isolated from a mat by a construction feature, such as an internal footing, grade beam, foundation wall or other obstacle having a depth greater than the exterior foundation walls.
4. No portion of a building floor shall be more than 35 feet from the mat.
5. Mats shall be run parallel to the longest slab dimension unless obstructed by a construction feature, and arranged in a pattern that provides at least two possible flow paths from any point on the mat to a radon vent pipe.

3008.4.2.3 Radon vent connection. The radon vent pipe shall join to the mat in a manner that does not restrict the full air flow capacity of the pipe. Where required, dependent upon the thickness and effective net-free-area

of the ventilation mat, the diameter of the vent pipe at the connections shall be enlarged with a suitable flange, or the the net-free-area of the mat shall be enlarged by installing additional layers of mat or a layer of gravel beneath the connection point. The soil gas retarder membrane shall be fully sealed to the radon vents in accordance with Section 3002.

3008.4.3 Perforated pipe systems. Perforated pipes shall be of a material that complies with this code for foundation drainage, and shall be sized according to the air flow estimated for the active soil-depressurization system. Perforated pipes installed in gravel shall be number 4 or 5 gravel compling with ASTM D 448, with not more than 5 percent passing a 3/8-inch screen.

3008.4.3.1 Installation. Perforated pipe pressure distribution manifolds shall be installed after the installation of all other utilities has been complete, and immediately prior to the soil gas retarder membrane. Pipes shall be installed with a row of perforations located at the bottom of the pipe, in order to allow condesate to drain from the system. Pipes shall be arranged in a pattern that provides at least two possible flow paths from any point in the system to a radon vent pipe. Separate sections of pipe shall be solvent welded or mechanically fastened together.

3008.4.3.2 Radon vent connection. The radon vent pipe shall join to the perforated pipe with a fitting that allows for the fill air flow capacity of the vent pipe. The soil gas retarder membrane shall be fully sealed to the radon vents in accordance with Section 3002.

3008.4.4 Continuous gravel layer system. Gravel used as the pressure distribution medium shall be installed only after the installation of other utilities has been completed, and immediately prior to the soil gas retarder membrane. Where regions of gravel are isolated from one another by interior foundation elements, separate suction points shall be provided in each region, or regions shall be interconnected with pipes run horizontally through the obstruction. The size and number of such pipes shall be sufficient to provide at least two-times the anticipated air flow. Not less than two pipes shall be used to interconnect one gravel area with another. These pipes shall be separated by a horizontal distance of not less than one-half the length of the boundary between the connecting gravel areas.

3008.4.4.1 Radon vent connection. The radon vent pipe shall join to the gravel layer with a "T" fitting that allows for the full air flow capacity of the vent pipe from either side of the "T". The fitting shall be installed with two arms in the gravel and a single arm connected to the radon vent pipe. The soil gas retarder membrane shall be fully sealed to the radon vents in accordance with Section 3002.

3008.4.5 Radon vent pipe installation. Radon vent pipes shall be solvent welded or otherwise joined to create a gas-tight connection from the soil suction point to the vent termination point. They shall be sloped at not less than 1/8-inch per foot in a mnner that will drain rain and condensate back to the soil, and shall be supported in accordance with the requirements for vents in the *International Plumbing Code*.

3008.4.5.1 Labeling. Portions of the radon vent pipe no permanently encased in a wall or chase shall be labeled to prevent accidental misuse.

Labels shall consist of a pressure sensitive 2-inch yellow band with the words "Radon Reduction System" printed in black letters at least 1 inch in height. These labels shall be placed on every visible portion of the vent pipe at a spacing of not more than 3 feet. The labels shall be placed so as to be visible from any direction.

3008.4.5.2 Sizing. The size of vent pipes shall be determined by application of appropriate engineering principles and based on modeled air flow rates. For systems that comply with the alternate compliance method of Section 3008.4.2.2, and are installed in buildings with straight runs of vent pipes not more than 50 feet in height, the required number and size of vent pipes shall be determined as follows:

1. For up to 100 linear feet of ventilation mat, one 2-inch diameter pipe shall be used.
2. For up to 200 linear feet of ventilation mat, one 3-inch diameter pipe, or two 2-inch diamter pipes, shall be used.
3. For up to 400 linear feet of ventilation mat use one 4-inch diameter pipe, or two 3-inch diameter pipes, or four 2-inch diameter pipes shall be used.

3008.4.5.3 Terminals. Radon vent pipes shall terminate with a rain cap, installed above the roof of the structure, and shall be located in accordance with existing codes for toxic or noxious exhaust. Where not specifically addressed or applicable, vent pipes shall terminate in locations that minimize human exposure to their exhaust air, such that the location is:

1. At least 12 inches above the surface of the roof;
2. At least ten feet from any window, door or other openeing such as, but not limited to, an operable skylight or air intake to conditioned spaces of the structure; and
3. Ten feet from openings into an adjacent building. The total required distance (10 feet) shall be measured either directly between the two points or be the sum of measurements made around the intervening obstacles.

Where the discharge point is within two feet of the elevation of openings into conditioned space, the ten foot distance shall be the horizontal distance between the points.

3008.4.6 Suction fans. Soil-depressurization system fans shall be designed to maintain the following minimum air pressure differences at the lower opening of the radon vent pipe, as compared to the air pressure of the conditioned space above:

1. For systems using ventilation mats, 0.5 inches water column.
2. For systems using perforated pipe, 0.5 inches water column.
3. For systems using continuous gravel layers, 1.0 inches water column.

3008.4.6.1 Fan sizing. Soil-depressurization systems that comply with the alternative compliance method of Sections 3008.4.2.2 and 3008.4.5.2, shall comply by sizing the fan as follows:

1. For up to 100 linear of ventilation mat the fan shall be rated for 50 cfm (24 L/s) at 1-inch water column.

2. For 100 to 200 linear feet of ventilation mat, the fan shall be rated for not less than 100 cfm (47 L/s) at 1-inch water column.
3. For 200 to 400 linear feet of ventilation mat, the fan shall be rated for not less than 175 cfm (83 L/s) at 1-inch water column.

Add new standard(s) as follows:
ASTM E 154-08a (Reapproved 2013) Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, Walls or as Ground Cover.

ASTM C 1193-13 Standard Guide for Use of Joint Sealants

Reason: Radon in schools presents significant health risk. Thousands of schools are affected by radon. EPA found that 41% of schools that had high radon were located geographically within Zone 1 (high radon potential), It is common knowledge that there is no way to know your building/room's radon level unless you test. Testing before a building is constructed is not possible; therefore, preventative measures, such as adding radon reducing features during construction, can save future costs and lives. Often, the preventative measures alone are enough to keep radon levels below the 4 pCi/L action level. This means that many times, no fan for radon removal would need to run; thus saving more energy.

Bibliography: Radon Prevention in the Design and Construction of Schools and Other Large Buildings [EPA 625-R-92-016, June 1994].
Reducing Radon in Schools: A Team Approach [EPA 402-R-94-008, April 1994] at www.epa.gov/radon/pubs/index.html

www.epa.gov/radon

Cost Impact: Will increase the cost of construction
If the gravel and vapor barrier are already being installed due to code requirements, the cost will be at the low end of this range.The cost of adding radon resistant features during construction is much less than the cost to test and fix radon after construction. Typically, costs can be approximately $10,000 and $50,000 if these radon resistant features are not added during construction.

Analysis: A review of the standards proposed for inclusion in the code, ASTM E154 and ASTM C1193 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28), will be posted on the ICC website on or before April 2, 2014. All other standards proposed for inclusion into the code are already in Chapter 35 of the 2015 IBC.

G209-15 : Chapter 30 (New)-PALMER5624

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There are inconsistencies with this proposal and the radon requirements in the International Residential Code. This belongs in the appendix as it should be a jurisdictional decision. That would also be consistent with the IRC. The fatal flaw is that, as written, the proposal requires all means of remediation be implemented.

Assembly Motion: As Modified
Online Vote Results: Failed

Support: 15.85% (39) Oppose: 84.15% (207)

Assembly Action : **None**

Online Floor Modification:

~~**3005.1 General.** For the purposes of Section 3005, buildings with crawl spaces shall include all buildings with a floor supported above grade.~~

3002.1 Membrane materials. Acceptable soil gas retarder membranes shall consist of a single layer of polyethylene, not less than 0.006-inch (6 mils) thick with a maximum perm rating of 0.3. Polyvinyl chloride (PVC), ethylene diene ter polymer (EPDM), neoprene or other non-deteriorating, non-porous material ~~may be used instead of polyethylene, provide the installed thickness of the alternate material has greater or equal tensile strength, resistance to water-vapor transmission, resistance to puncture, and resistance to deterioration determined in accordance with ASTM E 154.~~ The membrane shall be placed to minimize seams and to cover all of the soil below the building floor.

3003.3.1 Sealants. Sealants shall be selected and installed in compliance with ASTM C 920~~ and ASTM C 1193~~.

1. Sealant materials shall be compatible with the materials they join, including curing compounds and admixtures, and with materials that will be applied over them, including floor finishing materials.
2. Field-molded sealants shall be installed in sealant reservoirs proportioned, cleaned of laitance and prepared in accordance with the manufacturer's recommendations. For elastomeric sealants, this generally requires the installation of a bond breaker or backer rod shall be provided where required by the sealant manufacturer's installation instructions. Where installed sealant is not protected by a finished floor or other protective surface, it shall be suitable to withstand the traffic to which it will be exposed. Waterstops shall be preformed from polyvinyl chloride or other non-corrosive material.

Individual Consideration Agenda

Public Comment 1:

Proponent : Jani Palmer, representing Environmental Protection Agency (palmer.janise@epa.gov) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

APPENDIX N RADON REDUCTION

SECTION N101 GENERAL

N101.1 Scope. The provisions of this section shall govern the design and construction of subslab soil exhaust systems that are intended to reduce radon concentrations within buildings.

N101.2 Applicability. This chapter shall apply to buildings located in areas designated as Zone 1, as determined in accordance with Figure AF101 of the International Residential Code. Where state or local jurisdictions have approved radon potential data that identify areas with predicted average indoor radon levels that equal or ecedd 4.0 picocuries per liter, such data shall supersed Figure AF101.

SECTION N102 SOIL GAS BARRIERS AND BASE COURSE MATERIALS

N102.1 Damp proofing, waterproofing and soil gas retarder membranes. Floors, foundations, and walls that are in contact with the ground, and penetrations through footings, shall be damp proofed or waterproofed in accordance with Section 1805. Earthen floors in basements and enclosed crawlspaces shall be covered with a continuous membrane of 6-mil (0.15 mm) polyethylene or equivalent that is sealed at the edges. Between slab floors and the base course required in Section N102.2, damp proofing materials shall be installed in accordance with Section 1805.2.1. Punctures, tears and gaps around penetrations of a membrane shall be repaired or covered with additional membrane material.

N102.2 Sub-slab and sub-membrane. A base course in accordance with Section 1805.4.1 shall be installed below slab floors and foundations. There shall be a continuous gas permeable base course within each sub-slab area and under each membrane that is separated by foundation walls or footings**.**

N102.3 Soil gas entry routes. Openings in slab floors, membranes, and joints, such as but not limited to plumbing, ground water control systems, soil vent pipes, electrical, and mechanical piping and structural supports, shall be sealed against air leakage at the penetration with a polyurethane caulk applied in accordance with the manufacturer's instructions. Foundation walls shall be constructed in accordance with Section AF103.2.3 of the International Residential Code. Sumps shall be covered with a rigid lid that is sealed with a gasket or silicone caulk and mechanically fastened to facilitate removal for maintenance. Sumps and sump lids intended for ground water control shall not be connected to any part of the subslab soil exhaust system.

SECTION N103 SOIL GAS VENT

N103.1 Soil gas vent. System components and labeling for a subslab soil exhaust vent shall be installed in accordance with Section 512 of the International Mechanical Code. The vent pipe size shall not be reduced at any location except where the below-floor end of the vent pipe is connected vertically to a pipe fitting with not less than two horizontal openings, such as a T fitting or other manifold system that maintains airflow capacity. The fitting's horizontal openings shall be connected to an unobstructed void space such as a perforated pipe not less than 2 feet (0.6 m) in length and not less than 4 inches (10 cm) in diameter that is installed in the base course.

SECTION N104 VENTED AREA

N104.1 Vented area. The maximum foundation area served by a subslab soil vent shall be determined in accordance with Table N104.1.

N104.2 Multiple vented areas. Where interior foundations divide an area to be vented into two or more areas of unconnected base course materials or membranes, a single subslab soil exhaust system shall vent the multiple areas where each area's vent pipes are be joined to the single subslab soil exhaust system above the floor or interconnected below the floors with perforated pipe or equivalent method.

TABLE N104.1
FOUNDATION AREA PER VENT

Maximum vented area per vent	Minimum pipe diameter
2,500 sq. ft. (232 m^2)	3-inch (7.6 cm)
4,000 sq. ft. (372 m^2)	4-inch (10 cm)
15,000 sq. ft. (1392 m^2)	6-inch (15.2 cm)

SECTION N105 FAN

N105.1 Fan. Each subslab soil exhaust system shall include a fan, or dedicated space for the post-construction installation of a fan. The fan and soil vent piping above the fan shall not be installed in occupied space. Electrical service for the fan shall be provided within six feet (1.8 m) of the fan location.

Commenter's Reason: Reason: This comment addresses feedback from the IBC committee action hearing, heard from committee members and opponents alike. In this comment replacing the text of the proposed Chapter 34, we state the requirements clearly and simply in much more succinct language. Redundant provisions have been removed and clarifications added. The proposed language also builds on section 512 of the IMC and chapter 18 of the IBC. It was widely acknowledged that radon is an issue that needs to be addressed in schools and other spaces. In recognition that so many believe that jurisdictions should have only the option to adopt it, this comment is submitted as an Appendix to allow jurisdictions to adopt as needed. Since it is an appendix, the designation of group E structures has been removed to allow jurisdictions to apply to other buildings located in Zone 1 high radon potential areas, so that jurisdictions choosing to protect

citizens from radon can offer reduction in the full range of buildings where exposure may occur.

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3008.8, 3008.8.1 (New)

Proposed Change as Submitted

Proponent : Dave Frable, representing US General Services Administration

2015 International Building Code

Revise as follows:

3008.8 Electrical power. ~~The following features serving each occupant evacuation elevator shall be supplied by both~~Sufficient normal ~~power~~ and Type 60/Class ~~2~~X/Level 1 standby power: ~~1. Elevator~~shall be provided to simultaneously operate all occupant evacuation elevators along with their associated elevator equipment.~~2. Ventilation,~~elevator hoistway lighting, elevator car lighting, and the ventilation and cooling equipment for their respective elevator machine rooms, control rooms, ~~machinery~~machine spaces and control spaces. ~~3. Elevator car lighting.~~

3008.8.1 Standby power evaluation and analysis. An evaluation and analysis shall be provided to determine the appropriate minimum time, in hours, that standby power must be provided following loss or failure of the normal power supply for the occupant evacuation elevators to operate for the specific building and application. The subject evaluation and analysis shall be prepared by the responsible registered design professional and shall be approved prior to installation.

Reason: Currently as written all occupant evacuation elevators must comply with Section 3007.8 which requires 2 hours of standby power for each occupant evacuation elevator and associated equipment simultaneously.
In many tall buildings across the country, the current 2-hour standby power requirement becomes costly and is likely much more conservative than necessary. The intent of this code change is to provide a more reasonable approach for providing standby power in lieu of using an arbitrary/absolute value of 2-hours. NFPA 110, Standard for Emergency and Standby Power Systems permits the use of Class X systems (Other time, in hours, as required by the application). Please note the Class defines the minimum time, in hours, for which the standby power system is designed to operate at its rated load without being refueled or recharged.

This proposal would permit the Building Official to approve an evaluation and analysis prepared by the registered design professions for determining the appropriate minimum time, in hours, that standby power must be provided for the respective building. In addition, it should also be pointed out that the 2-hour standby power requirement is also not consistent with reviews of the WTC bombing in 1996 that concluded buildings should not take longer than 1-hour to evacuate.

Cost Impact: Will not increase the cost of construction
This proposal will decrease the cost of construction as it will possibly reduce the size of the emergency power supply system providing standby power as well as determing the appropriate timeframe necessary for providing standby power for the operation of occupant evacuation elevators during an emergency.

G210-15 : 3008.8-FRABLE5036

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal requires a fire evacuation analysis. Not all buildings may need that. Furthermore, the design team will be required to hire a separate expert, which is cost prohibitive.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Dave Frable, representing US Gneral Services Administration (dave.frable@gsa.gov) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

3008.8.1 Standby power ~~evaluation and analysis~~ . ~~An evaluation and analysis~~ Standby power loads for occupant evacuation elevators shall be ~~provided to determine~~ a minimum of Type 60/Class 2/Level 1 standby power.

> **Exception:** Where an egress analysis in accordance with Section 3008.1.1 determines that the ~~appropriate~~ time required for full building evacuation is less than one hour, the Class that defines the minimum time, in hours, ~~that~~ for the duration of standby power ~~must be provided following loss or failure of the normal power supply for the occupant evacuation elevators to operate for the specific building and application. The subject evaluation and analysis~~ shall be ~~prepared by~~ not less than twice the ~~responsible registered design professional and shall be approved prior to installation~~ calculated evacuation time.

Commenter's Reason: Based on the General Committee's action to approve as submitted G 207-15, this code change proposal coordinates the electrical power and standby power requirements with new section 3008.8.1 "Determination of standby power load" and provides a reasonable alternative.
Currently as written all designated occupant evacuation elevators must comply with Section 3008.8 which requires 2 hours of standby power to ensure these elevators and associated equipment are operational for the entire duration of the building evacuation. However, in many tall buildings across the country, the current 2-hour standby power requirement becomes costly and is likely much more conservative than necessary.

The intent of this code change is to provide an alternative that would permit the Class that defines the minimum time for the standby power to be determined based on twice the calculated evacuation time of the egress analysis in Section 3008.1.1.1. We believe this approach which incorporates a safety factor of 2 is a reasonable alternate for demining the minimum standby power duration than utilizing the absolute value of 2 hours. In addition, it should also be pointed out that the 2-hour standby power requirement is also not consistent with reviews of the WTC bombing in 1996 that concluded buildings should not take longer than 1-hour to evacuate.

G213-15

3102.1, 3103.1, 3103.5 (New)

Proposed Change as Submitted

Proponent : Adolf Zubia, IAFC Fire & Life Safety Section, representing IAFC Fire & Life Safety Section

2015 International Building Code

Revise as follows:

3102.1 General. The provisions of Sections 3102.1 through 3102.8 shall apply to air-supported, air-inflated, membrane-covered cable, membrane-covered frame and *tensile membrane structures*, collectively known as membrane structures, erected for a period of 180 days or longer. Those erected for a shorter period of time shall comply with Section 3103 and the *International Fire Code*. Membrane structures covering water storage facilities, water clarifiers, water treatment plants, sewage treatment plants, greenhouses and similar facilities not used for human occupancy are required to meet only the requirements of Sections 3102.3.1 and 3102.7. Membrane structures erected on a building, balcony, deck or other structure for any period of time shall comply with this section.

3103.1 General. The provisions of Sections 3103.1 through ~~3103.4~~ 3103.5 shall apply to structures erected for a period of less than 180 days. Tents and other membrane structures erected for a period of less than 180 days shall comply with Section 3103.5 and the *International Fire Code*. Those erected for a longer period of time shall comply with applicable sections of this code.

Add new text as follows:

3103.5 Structural design. Temporary tents and membrane structures, including those erected for a period of less than 180 days, shall be designed and constructed in accordance with Chapter 16 where any of the following conditions occur:

1. The occupant load of the tent or membrane structure exceeds 300.
2. The height of the tent or membrane structure exceeds 30 feet (9144 mm).
3. The tent or membrane structure exceeds one story.
4. The floor area of the tent or membrane structure exceeds 5,000 square feet (465 m^2).

Construction documents as required by Section 1603 shall be provided for such temporary tents and membrane structures.

Reason: This proposal is submitted by Fire and Life Safety Section of the International Association of Fire Chiefs.
Temporary tents and membrane structures are now being constructed of significant size, with many containing multiple stories or floor levels. The potential collapse of these tents or membrane structures creates significant hazards to the occupants and others in the immediate vicinity.

These temporary tents and membrane structures have traditionally been regulated

solely by the IFC, however, the structural requirements are found in the IBC. Structural loads such as seismic, wind and snow loads impact temporary structures just the same as they would affect permanent structures.

This proposal accomplishes the following:

1. It provides a reference to the structural requirements for temporary tents and membrane structures in the IBC.

2. It includes the requirement that certain large tents and membrane structures must meet the same structural requirements that would be required for permanent structures.

This proposal will require a review of structural design for temporary tents and membrane structures over 30 feet in height or over 5,000 square feet,

over one story,

and over an occupant load of 300.

These categories of temporary tents and membrane structures are significantly larger than the typical, routine tent and membrane structure installation. The smaller tents are intentionally not included in this proposal.

A companion code change will be submitted to the IFC during the Group B code change cycle to complement this proposal.

Cost Impact: Will increase the cost of construction
The cost of construction will increase to cover the additional structural evaluation necessary to show compliance with Chapter 16.

G213-15 : 3102.1-ZUBIA4593

Public Hearing Results

Committee Action: Disapproved

Committee Reason: These issues are already covered by the code in Section 3103.1.1. The code official can already tell you what requirements must be applied for a temporary structure. The proposal as written says you must do everything. That may be overkill in certain circumstances. We need similar requirements, but these need work. We need a one time permit for short term permits that can be renewed annually. As written, the proposal could put very onerous requirements on small tents that are up for only a few days. The thresholds are not right. It should state what requirements in Chapter 16 must be complied with. This is written as an exception to Chapter 16. That is rather awkward. The proposal needs work, though the general concept is good and should be pursued.

Assembly Motion: As Submitted
Online Vote Results: Successful
Support: 59.39% (196) Oppose: 40.61% (134)
Assembly Action : Approved as Submitted

Individual Consideration Agenda

Public Comment 1:

Proponent : Assembly Action
requests Approve as Submitted.

Commenter's Reason: This code change proposal is on the agenda for individual consideration because the proposal received a successful assembly action. The assembly action for Approve as Submitted was successful by a vote of 59.39% (196) to 40.61% (134) by eligible members online during the period of May 14 - May 28, 2015.

Public Comment 2:

Proponent : Region VII, representing ICC Region VII (admin@iccregionvii.org) requests Approve as Submitted.

Commenter's Reason: Based upon the initial proponents reason statements.

Public Comment 3:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests

Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

3103.5 Structural design. Temporary tents and membrane structures, including those erected for a period of less than 180 days, shall be designed and constructed in accordance with Chapter 16 where any of the following conditions occur:

1. The ~~occupant load~~ occupancy of the tent or membrane structure ~~exceeds 300.~~
2. ~~The height of~~ is Group A and the occupant load in the tent or membrane structure ~~exceeds 30 feet (9144 mm)~~ is greater than 300.
3. The tent or membrane structure ~~exceeds one story.~~
4. ~~The floor area of~~ is not supported directly on the ~~tent or membrane structure exceeds 5,000 square feet (465 m^2)~~ ground.

Construction documents as required by Section 1603 shall be provided for such temporary tents and membrane structures.

Commenter's Reason: We are submitting the public comment in support of the original code change proposal with the following modifications. We currently require multi story tents or tents not directly supported on the ground to be designed for the location and manner in which they are installed. The design of the tents or structures (industry term for membrane structures where a frame supports the fabric) is available however may not be updated to most current codes. Large sporting events typically have elaborate tent structures that are tall and have long spans, thresholds triggering requirements based on those two variables are difficult..
We see the logic in the 300 occupant load since the risk category changes at that threshold.

The parent Section 3103.1.1 addresses the issue generally. The code change actually requires a structural design to be submitted. A structural design is generally not submitted for tents and membrane structures regulated by the fire department.

Many in the event industry seem to believe that events will not be held in high winds or during inclement weather so structural loading should not be a concern. A Building Official's concern is impacts to the surrounding community of the installation blowing off and damaging neighboring property.

Most events are held safely however the on in a 1,000 where it does not can not be identified without a review of each one to find the one.

A structural design puts a registered design professional in charge and places the responsibility on that person to ensure safety. Additionally reuse of components for temporary structures other than bleachers results in damage that often requires an engineering evalaution to allow reuse or repair.

Public Comment 4:

Proponent : Marcelo Hirschler, representing GBH International

(gbhint@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

3103.5 Structural design. Temporary tents and membrane structures, including those erected for a period of less than 180 days, shall be designed and constructed in accordance with ~~Chapter 16~~ Sections 1606, 1607 and 1609 where any of the following conditions occur:

1. The occupant load of the tent or membrane structure ~~exceeds 300.~~

~~2. The height of~~ is greater than 500 and the ~~tent or membrane structure exceeds 30~~ exit travel distance is greater than 75 feet (~~9144~~ 22 860 mm).

~~3~~2. The tent or membrane structure ~~exceeds~~ is greater than one story in height.

~~4. The floor area of the tent~~

Tents or membrane ~~structure exceeds 5,000 square feet (465 m^2).~~ structures greater than one story in height shall also comply with Section 1613. Construction documents as required by Section 1603 shall be provided for such temporary tents and membrane structures.

Commenter's Reason: This public comment makes several changes to the original proposal, in line with what the committee recommended. It is clear that there is a potential hazard associated with very large temporary tents and membrane structures, which can have multiple stories and occupy large areas. Sections 1606, 1607 and 1609 deal with dead loads, live loads and wind loads; the section on snow loads is specifically not included because it appears to be less relevant to such temporary tent or membrane structures. Requirements for earthquake protection are included only for structures that are more than a single story.

Public Comment 5:

Proponent : Thomas Markel, representing Industrial Fabric Association International - Tent Rental Division (tom@bravoeventrentals.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

3102.1 General. The provisions of Sections 3102.1 through 3102.8 shall apply to air-supported, air-inflated, membrane-covered cable, membrane-covered frame and *tensile membrane structures*, collectively known as membrane structures, erected for a period of 180 days or longer. Those erected for a shorter period of time shall comply with Section 3103 and the *International Fire Code*. Membrane structures covering water storage facilities, water clarifiers, water treatment plants, sewage treatment plants,

greenhouses and similar facilities not used for human occupancy are required to meet only the requirements of Sections 3102.3.1 and 3102.7. Membrane structures erected on a building, balcony, deck or other structure for any period of time shall comply with this section.

3103.1 General. The provisions of Sections 3103.1 through 3103.5 shall apply to structures erected for a period of less than 180 days. Tents and other membrane structures erected for a period of less than 180 days shall comply with Section 3103.5 and the *International Fire Code*. Those erected for a longer period of time shall comply with applicable sections of this code.

3103.5 Structural design. Temporary tents and membrane structures~~, including those erected~~ exceeding one story in height that are errected for a period of less than 180 days~~,~~ shall comply with the following:
1. Construction documents in accordance wtih Section 1603 shall be provided,
2. Shall be designed and constructed in accordance with ~~Chapter 16 where any of~~ Sections 1606, 1607 and 1609 and,
3. Where the ~~following conditions occur:~~

~~1. The occupant load of the tent or membrane structure exceeds 300.~~
~~2. The height of the tent or membrane structure exceeds 30 feet (9144 mm).~~
~~3. The tent or membrane structure exceeds one story.~~
~~4. The floor area of the tent or membrane structure exceeds 5,000 square feet (465 m^2).~~

~~Construction documents as required by~~ building official determines that seasonal snow loads are applicable, shall comply with Section ~~1603 shall be provided for such temporary tents and membrane structures~~ 1608.

Commenter's Reason: Temporary tents and membrane structures may have more than one story. Under these conditions, a collapse or anchoring failure of the tent or membrane structure creates significant hazards to the occupants and bystanders in the immediate vicinity. It is important to evaluate the structural integrity of these structures to avoid potential collapse that could injure occupants and those in the immediate vicinity.
These requirements should be included in Chapter 31 because in most jurisdictions structural engineers are located in the building department. It is often problematic for fire code officials to engage them to evaluate the structural stability of temporary tents and membrane structures based on IFC requirements. The IFC was changed in 2015 to accommodate multistory tents and a companion change is necessary to synchronize the IBC.
The original code proposal placed all Chapter 16 requirements on temporary tents and membrane structures which cannot be design to meet many. By specifying the needed requirements for temporary tents; Live, Dead and Wind Loads, optionally requiring snow loads and eliminating Seismic, Flood and other loads that a temporary tent cannot be designed to handle this modification properly deals with Chapter 16 requirements.
Other items in the original proposed code change call for aspects of the tent design, such as 30' height and occupancy loads, triggering Chapter 16 requirements. Instead this public comment doesn't trigger on requirements such as height, but rather triggers on multistory, as does the IFC.

Cost Impact: This proposal will increase the cost of construction to cover the additional structural evaluation and potential additional structural supports and tie downs.

Public Comment 6:

Proponent : Adolf Zubia, representing International Association of Fire Chiefs, Fire & Life Safety Section (azubiamia@yahoo.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

3103.5 Structural design. Temporary tents and membrane structures~~, including those erected for a period of less than 180 days,~~ exceeding one story in height shall be designed and constructed in accordance with ~~Chapter 16 where any of the following conditions occur:~~

1. ~~The occupant load of the tent or membrane structure exceeds 300.~~
2. ~~The height of the tent or membrane structure exceeds 30 feet (9144 mm).~~
3. ~~The tent or membrane structure exceeds one story.~~
4. ~~The floor area of the tent or membrane structure exceeds 5,000 square feet (465 m^2).~~

~~Construction documents as required by Section 1603 shall be provided for such temporary tents~~ Sections 1606, 1607, 1608 and ~~membrane structures~~ 1609.

Commenter's Reason: Temporary tents and membrane structures can be erected with more than one story. Typically, these multi-story tents are for large events, with large number of occupants. Under these conditions, the collapse of the tent or membrane structure creates significant hazards to the occupants and bystanders in the immediate vicinity. It is important to evaluate the structural integrity of these structures to avoid potential collapse that could injure occupants and those in the immediate vicinity.
The revisions shown in this Public Comment are consistent with the current requirements in IFC Section 3103.9.1 which requires over 1 story to comply with Chapter 16 of the IBC.

This Public Comment revises the original proposal by making the following changes in response to Code Development Committee comments are as follows:
"These issues are already covered by the code in Section 3103.1.1. The code official can already tell you what requirements must be applied for a temporary structure." Section 3103.1.1 includes a rather vague requirement that temporary structures, regardless of the size or use, must comply with structural strength requirements of the IBC. This public comment clarifies that tents or membrane structures shall be designed and constructed per Chapter 16.

"The proposal as written says you must do everything. That may be overkill in certain circumstances. We need similar requirements, but these need work. We need a one time permit for short term permits that can be renewed annually. As written, the proposal could put very onerous requirements on small tents that are up for only a few days. The thresholds are not right." Agree that the four items noted in the proposal exceeded requirements currently in the IFC. This public comment now correlates with the following IFC requirement requiring tents and membrane structures to meet structural requirements in the IBC.
Additionally, Item 1 is deleted, since the threshold of 300 occupants could occur in a small tent or a multi-story tent and does not seem like a consistent criteria to use as a threshold.

The 30' height criteria in Item 3 is deleted, as it could be a small tent with a high center pole, or it could a large tent with a large span.
Item 4 is deleted, since there are many tent designs which would cross this threshold, but it may not be a justifiable threshold.

"It should state what requirements in Chapter 16 must be complied with. This is written as an exception to Chapter 16. That is rather awkward. The proposal needs work, though the general concept is good and should be pursued." Agree the proposal now points to the Chapter 16 sections that are most applicable to temporary, multistory tents. This includes dead load, live load, snow load and wind load sections.

G213-15

G214-15

3103.5 (New), 3103.5.1 (New)

Proposed Change as Submitted

Proponent : Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2015 International Building Code

Add new text as follows:

3103.5 Accessibility. Temporary structures shall comply with the accessibility requirements of Chapter 11.

3103.5.1 Temporary outdoor performance areas. An accessible route is required to an temporary outdoor performance area. An accessible route shall directly connect the temporary outdoor performance area to the assembly seating or standing area where a circulation path directly connects a temporary outdoor performance area to the an assembly seating or standing area.

Exception: The vertical access to the elevated temporary outdoor performance area is not required at the time of initial construction provided:

1. A ramp, lift or elevator can be installed without reconfiguration or extension of the temporary outdoor performance area or extension of the electrical system; and
2. The accessible route is not required from the assembly seating or standing area to the temporary outdoor performance area.

Reason: The proposed amendment addresses the accessibility requirements for temporary structures. Section 107.2 requires temporary uses to comply with the IBC including the accessibility requirements. The proposed addition of Section 3103.5 references Chapter 11 and makes clear that the temporary construction need only comply if involving the applicable facilities regulated by Chapter 11. For example a snow ramp and similar elevated structures that do not covey users are not considered amusement rides and therefore not regulated.

Section 3103.5.1 is added to address a practical issue during temporary performances where the show producer knows that no persons with mobility impairments require access onto a performance stage and prefer to incur the additional costs of a ramp or platform lift. The ADA requires all employers to accommodate persons with disabilities and as a result the code change is proposed with permissive language to allow for circumstances where access can be provided. By requiring an accessible route up to the temporary platform or stage the code change will make it possible to add a temporary platform lift or ramp if necessary to provide access. A temporary structure is very similar to a moved or relocated building; the IEBC does not require that moved or relocated buildings be made accessible. Additionally, the employee work area definition in the IBC is broad enough to classify the performance stage or platform as an employee work area that Section 1103.2.2 only requires compliance with the accessibility requirements in Section 1104.3 that requires an accessible route to connect the employee work area to the rest of the facility.

Cost Impact: Will not increase the cost of construction

This code change will not increase the cost of construction since the cost of installing a ramp or a lift when not needed is avoided.

G214-15 : 3103.5 (New)-FATTAH5007

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Exception 2 conflicts with ADA requirements. An elevator or lift for a temporary use structure that may only be there for 15 or 20 days or less is not realistic.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Ali Fattah, City of San Diego Development Services, representing City of San Diego (afattah@sandiego.gov) requests Approve as Submitted.

Commenter's Reason: We are submitting this public comment carefully considering the feedback provided by the General Committee during the committee action hearings.

- The committee stated that temporary structures were already regulated by Section 1103.1 so the code change is redundant.
- The committee stated that the exception proposed to Section 3103.5.1 is misleading since the permit applicant would construct the outdoor performance area and later on during the inspection would be required to provide access.
- It is not clear who would decide to apply exception # 2.
- The Access Board rose in support of the proposal because it is not clear whether Section 3103 intends temporary structures to comply only with vertical/lateral load requirements, fire separation and means of egress requirements or all the requirements in the IBC and it's referenced standards. Some have interpreted that access is not required since it is not explicitly identified in Section 3103.

Section 3103 of the IBC triggers requirements for temporary structures.

1. Section 3103.1.1 requires temporary structures and uses to conform to the structural strength, fire safety, means of egress, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure public health, safety and general welfare.
2. Section 3103.3 and 3103.4 require temporary structures to comply with T 602 for location on property and means of egress requirements with modified requirements.
3. It is clear that Section 3103 provides a road map to reaffirm some requirements in the IBC and to modify some.

The proposed Section 3103.5 proposes to affirm the requirement that accessibility is required for temporary structures. Additionally the proposed Section makes clear the intent of Section1103.1 that accessibility is required for "sites, buildings, structures, facilities, elements and spaces, temporary or permanent" which is similar to Section 3103.3 and 3103.4. Additionally the proposal adds a modification to accessibility

similar to the means of egress modification shown in Section 3103.4 to limit access to outdoor temporary performance areas within the limits of Section 1103.2.2. Additionally the proposal seeks to clarify that access needs to be provided for employees or when it is determined that the stage is not only to be used by employees which would be in violation of Section 1103.2.2.

The jurisdictions represented by the ICC inspect numerous outdoor performance areas for concerts, sporting events and temporary events. We require access and always get push back that access does not need to be provided since the construction is temporary and since the elevated performance areas are only accessed by performers. The proposal is akin to self certification wherein the applicant describes the proposed use and is exempted from access accordingly but is required to provide the basic infrastructure to insure that in the event access s required by an employee it can be provided with limited effort.

The proposed code change intends to ensure uniformity and clarity in code application and to avoid non-enforcement of Ch11 requirements.

Public Comment 2:

Proponent : Region VII, representing ICC Region VII (admin@iccregionvii.org) requests Approve as Submitted.

Commenter's Reason: Based upon the proponents initial reason statement.

G214-15

G215-15
3104.3

Proposed Change as Submitted

Proponent : Mike Fischer, Kellen Company, representing the Plastic Glazing Coalition of the American Chemistry Council (mfischer@kellencompany.com)

2015 International Building Code

Revise as follows:

3104.3 Construction. The *pedestrian walkway* shall be of noncombustible construction.

Exceptions:

1. Combustible construction shall be permitted where connected buildings are of combustible construction.
2. *Fire-retardant-treated wood*, in accordance with Section 603.1, Item 1.3, shall be permitted for the roof construction of the *pedestrian walkway* where connected buildings are a minimum of Type I or II construction.
3. Awnings or canopies installed at a *pedestrian walkway* shall be in accordance with Section 3105.

Reason: Awnings and canopies are often used at pedestrian walkways. Section 3104.3 requires that pedestrian walkways be of non-combustible construction, but provides no guidance on canopies or awnings that may cover, or project over, the walkway. The proposal provides a reference to indicate that the provisions of 3105, which apply to awnings and canopies in other locations, also apply over pedestrian walkways.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of existing code provisions; it does not add new requirements.

G215-15 : 3104.3-FISCHER5483

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The language and the flamability levels of the roof structure are problematic.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Mike Fischer, Kellen, representing the Plastic Glazing Coalition of the American Chemistry Council

(mfischer@kellencompany.com) requests Approve as Submitted.

Commenter's Reason: IBC Section 3104.3 contains requirements for the materials permitted to be used at pedestrian walkways. Section 3105 contains requirements for awnings and canopies. This proposal does not change the code requirements; it makes it clear that awnings and canopies used over pedestrian walkways governed by 3104.3 must also comply with 3105, which includes structural, durability and fire performance measures.
There was significant debate during the committee hearing about the use of canopies over these walkways, but the code does not prohibit their installation. Opponents of this proposal perceived it as a relaxing of the code, when in fact it is actually strengthening code *compliance* by clearing up this potential ambiguity. The proposal is not addressing only plastic materials and glazing; it applies to all types of construction materials.

Additional debate centered on whether or not such structures *should* be permitted to be constructed with plastic elements; they already are permitted and in fact are used in many applications. Various photos of both awnings and canopies in use and permitted by the code are attached; ironically the week after the CDH I travelled to Charlotte. The Charlotte airport was under construction; I was greeted by a temporary canopy made from a flexible fabric material installed on a frame system over a pedestrian walkway (two photos attached).

Some of the photos included with this public comment show structures that combine elements of awnings *and* canopies; all show applications over pedestrian walkways.


PEDESTRIAN
CROSSING


The Court


Neiman Marcus

Public Comment 2:

Proponent : Marcelo Hirschler, representing GBH International (gbhint@aol.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

3104.3 Construction. The *pedestrian walkway* shall be of noncombustible construction.

Exceptions:

1. Combustible construction shall be permitted where connected buildings are of combustible construction.
2. *Fire-retardant-treated wood*, in accordance with Section 603.1, Item 1.3, shall be permitted for the roof construction of the *pedestrian walkway* where connected buildings are a minimum of Type I or II construction.
3. ~~Awnings~~ The coverings for awnings or canopies installed at a *pedestrian walkway* shall ~~be in accordance~~ comply with Section ~~3105~~ 3105.4.

3105.4 ~~Awnings~~ Coverings for awnings and canopy materials. Awnings and *canopies* shall be provided with an *approved* covering that ~~meets~~ complies with one of the following:

1. The fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701~~ or has~~ ,
2. Has a *flame spread index* not greater than 25 when tested in accordance with ASTM E 84 or UL 723, or

3. Complies with all of the following criteria as tested in accordance with NFPA 286:
    3.1. During the 40 kW exposure, flames shall not spread to the ceiling.
    3.2. Flashover, as defined in NFPA 286, shall not occur.
    3.3. The flame shall not spread to the outer extremity of the sample on any wall or ceiling.
    3.4. The peak heat release rate throughout the test shall not exceed 800 kW.

Exception: The fire propagation performance and flame spread index requirements shall not apply to awnings installed on detached one- and two-family dwellings.

Commenter's Reason: The intent of this code proposal (and of the comment) is to deal with the coverings for the awnings or canopies. Awning is defined in the IBC as "An architectural projection that provides weather protection, identity or decoration and is partially or wholly supported by the building to which it is attached. An awning is comprised of a lightweight frame structure over which a covering is attached." Clearly, the intent of section 3105.4 (and of the proposed amendment to section 3104.3) is to deal with the fire properties of the coverings and not of the structural section of the awning. This comment is not intended to modify the change approved in G220, and the corresponding language is used here also, for clarification. This change would make sections 3014 and 3105.4 consistent with the committee's comment. The proposed change to the title of section 3105.4 (although titles are within the jurisdiction of ICC staff) would make it clear that this section also handles exclusively the coverings.

G215-15

G218-15
3105.1

Proposed Change as Submitted

Proponent : Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Revise as follows:

3105.1 General. *Awnings, canopies* and ~~*canopies*~~ trellises shall comply with the requirements of Sections 3105.2 through 3105.4 and other applicable sections of this code.

Reason: Trellises are not currently addressed by the IBC. Trellises represent no greater hazard than awnings or canopies, which are similar to trellises, except that they have a cover.

Cost Impact: Will not increase the cost of construction
Adding the term trellis to the code will not requre that construction work be made any different than the way it's currently done.

G218-15 : 3105.1-CUEVAS4921

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Trellises are not defined in Section 3105. Trellis requirements are not related to canopies and awnings. This is the wrong place for the provisions and the proposed changes do not improve the code.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Victor Cuevas, representing City of Los Angeles (victor.cuevas@lacity.org) requests Approve as Submitted.

Commenter's Reason: Since the concerns and comments raised by the committee were addressed under G219-15, and since there is no other section in the code where similar structures can be found, we would like the membership to take a second look and overturn the committee's original decision.

G218-15

G219-15

202 (New), 3105.3

Proposed Change as Submitted

Proponent : Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

TRELLIS. A permanent structure or architectural projection of rigid construction that provides shading, identity or decoration. Trellises may be constructed of lattice members so that a sphere of 10 inches minimum in diameter can pass through, or of members running in one direction only with a minimum clear spacing between the members of not less than 4 inches. A trellis is permitted to be structurally independent or supported by attachment to a building on one or more sides.

Revise as follows:

3105.3 Design and construction. *Awnings,canopies* and ~~*canopies*~~trellises shall be designed and constructed to withstand wind or other lateral loads and live loads as required by Chapter 16 with due allowance for shape, open construction and similar features that relieve the pressures or loads. Structural members shall be protected to prevent deterioration. *Awnings*and trellises shall have frames of noncombustible material, *fire-retardant-treated wood*, wood of Type IV size, heavy timber or 1-hour construction with combustible or noncombustible covers and shall be either fixed, retractable, folding or collapsible.

Exception: Trellises in Group R-3 occupancies shall be permitted to be constructed of any materials allowed by this code.

Reason: The proposed new definition for trellis, is similar to a canopy, except without a covering. This definition incorporates spacing requirements that have been developed and used for trellises at single family dwellings.
Section 3105.3 is being amended to include trellises, and to include a reference to heavy timber. The exception is in place to continue allowances for trellises of any material or size in one- and two-family homes.

Cost Impact: Will not increase the cost of construction
This change does not require any change in the way buildings are built. It simply establishes a criteria/threshold for when floor area needs to be accounted for, when roof projections exceed the outer walls of a building.
Adding the term trellis to the code will not requre that construction work be made any different than the way it's currently done.

G219-15 : 3105.3-CUEVAS4922

Public Hearing Results

Committee Action: **Disapproved**

Committee Reason: The concept is good. However, there are problems with the proposal as currently written. Definitions should not carry technical requirements. It may not be appropriate in the awnings and canopies section. it exempts R3 occupancies, but its application regarding R2 occupancies should be clarified. A percentage opening requirement might be more appropriate as opposed to the specific requirements that are proposed.

Assembly Motion: **As Modified**
Online Vote Results: **Failed**
Support: 38.38% (109) Oppose: 61.62% (175)
Assembly Action : **None**

Online Floor Modification:

SECTION 202

DEFINITIONS

TRELLIS. A permanent structure or architectural projection of rigid and open lattice construction that provides shading~~, identity~~ or decoration. ~~Trellises may be constructed of lattice members so that a sphere of 10 inches minimum in diameter can pass through, or of members running in one direction only with a minimum clear spacing between the members of not less than 4 inches. A trellis is permitted to be structurally independent or supported by attachment to a building on one or more sides.~~

3105.3Design and construction. Awnings, canopies and trellises shall be designed and constructed to withstand wind or other lateral loads and live loads as required by Chapter 16 with due allowance for shape, open construction and similar features that relieve the pressures or loads. Structural members shall be protected to prevent deterioration. Awnings and trellises shall have frames of noncombustible material, fire-retardant-treated wood, wood of Type IV size, heavy timber or 1-hour construction with combustible or noncombustible covers and shall be either fixed, retractable, folding or collapsible.

> **Exception:** Trellises in Group R-3 occupancies shall be permitted to be constructed of any materials allowed by this code.

3105.3.1 Trellis. A trellis shall be constructed of lattice members so that a sphere of 10 inches minimum in diameter

can pass through, or of members that are running in one direction only have a minimum clear spacing between the members of not less than 4 inches. A trellis is permitted to be structurally independent or supported by a building on one or more sides.

Individual Consideration Agenda

Public Comment 1:

Proponent : Victor Cuevas, representing City of Los Angeles (victor.cuevas@lacity.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

3105.3 Design and construction. *Awnings,canopies* and trellises shall be designed and constructed to withstand wind or other lateral loads and live loads as required by Chapter 16 with due allowance for shape, open construction and similar features that relieve the pressures or loads. Structural members shall be protected to prevent deterioration. *Awnings* and trellises shall have frames of noncombustible material, *fire-retardant-treated wood*, wood of Type IV size, heavy timber or 1-hour construction with combustible or noncombustible covers and shall be either fixed, retractable, folding or collapsible.

Exception: Trellises in Group R-3 occupancies shall be permitted to be constructed of any materials allowed by this code.

3105.3.1 Trellises. Trellises shall be constructed of lattice members with more than 75 percent open.

Commenter's Reason: This comment addresses the comments and concerns raised by the committee by modifying the original proposal slightly. The exception is to allow any type of construction material on an R-3 Occupancy.

Public Comment 2:

Proponent : Tim Earl, representing GBH International (tearl@gbhinternational.com) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

SECTION 202 DEFINITIONS

TRELLIS. A permanent structure or architechtural projection of rigid and open lattice construction that provides shading or decoration.

SECTION 3106 TRELLISES

3106.1 Trellises. Trellises shall comply with Section 3105.3.

Exception: Trellises in Group R-3 occupancies shall be permitted to be constructed of any materials allowed by this code.

Commenter's Reason: Trellises are not currently addressed in the IBC, and this need is a gap which should be filled. The committee stated that the concept was good but that the proposal needed work. The original proposal tried to fit trellises into section 3105. This Public Comment adds a new section 3106 for trellises.

R-3 occupancies are exempted due to the small number of occupants.

G219-15

G221-15

3111, 3111.1, 3111.1.1, 3111.1.1.1 (New), 3111.1.1.2 (New)

Proposed Change as Submitted

Proponent : Victor Cuevas, representing City of Los Angeles

2015 International Building Code

SECTION 3111 PHOTOVOLTAIC PANELS AND MODULES

3111.1 General. Photovoltaic panels and modules shall comply with the requirements of this code and the *International Fire Code*.

3111.1.1 Rooftop-mounted photovoltaic panels and modules. Photovoltaic panels and modules installed on a roof or as an integral part of a roof assembly shall comply with the requirements of Chapter 15 and the *International Fire Code*.

Add new text as follows:

3111.1.1.1 Height and area Photovoltaic panel arrays supported by a structure shall not constitute an additional story or additional floor area provided one of the following is met:

1. The highest point of the structure/panel array shall meet the lower of the two values below:
   1.1 Ten feet above the allowable building height; or
   1.2. Ten feet above the roof of the building immediately below.

2. Either no use is located on the roof beneath the photovoltaic array or the use of the roof shall be limited to parking complying with all of the following:
   2.1. The total area within the perimeter of each photovoltaic array shall not be greater than 6,000 square feet.
   2.2. The distance between solar photovoltaic array structures shall be not less than 10 feet.
   2.3. Where a driveway aisle is located between arrays, the distance between the arrays shall be not less than 25 feet.
   2.4. No storage shall occur beneath the array, and
   2.5. The structure supporting the array shall be completely open on all sides, with no interior partitions.

3111.1.1.2 Fire-resistance Noncombustible structural members supporting photovoltaic panel arrays shall not be required to have a fire-resistance rating as follows:

1. Where no use occurs beneath the array, the array structure and supported photovoltaic panels shall have uniformly distributed and unobructed openings throughout the top of the array as approved by the code official, to allow heat and gases to escape. The code official is authorized to require signage prohibiting use of the space beneath the array; or

2. Where parking is located beneath the array, the requirement of Section 3111.1.1.1 are met.

Reason: Add regulations similar to the State of California. The area limitation of 6,000 square feet will allow the Fire Department to get around the structures when putting out a fire.

Cost Impact: Will not increase the cost of construction
This code amendment will not increase the cost of construction. This amendment seeks to establish consistency in requirements for the regulation of Photovoltaic systems installation.

G221-15 : 3111.1.1.1 (New)-CUEVAS4746

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The proposal conflicts with the International Fire Code. It is almost right, but it is not quite right, though the concept is good. Under Section 3111.1.1.1, it should be split into parking and non-parking requirements. It should be clarified that the reduction in fire resistance is for the array and not the main structure of the building. Should it make a difference if the area under the array is sprinklered? Leaving it up to the code official to determine the gaps between arays is not appropriate. Under Section 3111.1.1.2, where it indicates there is "no use under the array," it is not clear what that means. Buildings with setbacks may also need to be addressed.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Victor Cuevas, representing City of Los Angeles (victor.cuevas@lacity.org) requests Approve as Modified by this Public Comment.

Replace Proposal as Follows:

2015 International Building Code

SECTION 3111 PHOTOVOLTAIC PANELS AND MODULES

3111.1 General. Photovoltaic panels and modules shall comply with the requirements of this code and the *International Fire Code*.

3111.1.1 Rooftop-mounted photovoltaic panels and modules. Photovoltaic panels and modules installed on a roof or as an integral part of a roof assembly shall comply with the requirements of Chapter 15 and the *International Fire Code*.

3111.1.1.1 Photovoltaic panel arrays supported by a structure with no use underneath. Photovoltaic panel arrays supported by a structure with no use underneath shall not constitute an additional story, height, or floor area provided the highest point of the structure or photovoltaic panel array does not exceed the lower of the following values:

1. Ten feet above the allowable building height; or
2. Ten feet above the roof of the building immediately below.

3111.1.1.2 Photovoltaic panels supported by a structure over parking stalls. Photovoltaic panels supported by a structure over parking stalls shall not constitute an additional story, height, or floor area where all of the following conditions are met:

1. The total area within the perimeter of each photovoltaic panel array shall be not greater than 6,000 square feet.
2. The distance between photovoltaic panel array structures shall be not less than 10 feet.
3. Where a driveway aisle is located between arrays, the distance between the photovoltaic panel arrays shall be not less than 25 feet.
4. The photovoltaic panel array structure is used only for parking purposes with no storage underneath.
5. The structure supporting the photovotaic panel array is completely open on all sides, with no interior partitions.
6. It complies with the height limitations of Section 3111.1.1.1.

3111.1.1.3 Fire-resistance. Noncombustible structural members supporting photovoltaic panel arrays shall not be required to have a fire-resistance rating under either of the following conditions:

1. Where photovoltaic panel arrays are supported by a structure with no use underneath and the array structure and supported photovoltaic panels have uniformly distributed and unobstructed openings throughout the top of the array, as approved by the code official, to allow heat and gases to escape. The code official is authorized to require signage prohibiting use of the space beneath the array; or
2. Where photovoltaic panels are supported by a structure over parking stalls, the panels constitute the roof and both of the following conditions are satisfied:
    - 2.1. The requirements of Section 3111.1.1.2 are satisfied.
    - 2.2. The area within the perimeter of the photovoltaic panel array has maximum rectangular dimensions of 40 feet by 150 feet.

Commenter's Reason: The original proposal was replaced to address the committee's comments and recommendations.

G221-15

G223-15

107.2.7 (New), 202 (New), 3101.1, 3112 (New), 3112.1 (New), 3112.1.1 (New), 3112.2 (New), 3112.3 (New), 3112.4 (New)

Proposed Change as Submitted

Proponent : Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Add new text as follows:

107.2.7 Relocatable buildings. Construction documents for relocatable buildings shall comply with this section and Section 3112.

Add new definition as follows:

SECTION 202 DEFINITIONS

RELOCTABLE BUILDING. A partially or completely assembled building constructed and designed to be reused multiple times and transported to different building sites.

Revise as follows:

3101.1 Scope. The provisions of this chapter shall govern special building construction including membrane structures, temporary structures, *pedestrian walkways* and tunnels, automatic *vehicular gates*, *awnings* and *canopies*, *marquees*, signs, and towers, antennas, and ~~antennas~~ relocatable buildings.

Add new text as follows:

SECTION 3112 RELOCATABLE BUILDINGS

3112.1 General. The provisions of this section shall apply to relocatable buildings. Relocatable buildings manufactured after the effective date of this code shall comply with the applicable provisions of this code.

3112.1.1 Compliance. A newly constructed relocatable building shall comply with this code for new construction. An existing relocatable building that is undergoing alteration, addition, change of occupancy or relocation shall comply with Chapter 13 of the *International Existing Buildings Code*.

3112.2 Supplemental information. Supplemental information specific to a relocatable building shall be submitted to the authority having jurisdiction. It shall, as a minimum, include all of the following in addition to the information required by Section 105.

1. Manufacturer's name and address.
2. Date of manufacture.
3. Serial number of module.
4. Manufacturer's design drawings.
5. Type of construction in accordance with Section 602.
6. Design loads including: roof live load, roof snow load, floor live load,

wind load and seismic site class, use group and design category.
7. Additional building planning and structural design data.
8. Site built structure or appurtenance attached to the relocatable building.

3112.3 Manufacturer's data plate. Each relocatable module shall have a data plate that is permanently attached on or adjacent to the electrical panel, and shall include the following information:

1. Occupancy group.
2. Manufacturer's name and address.
3. Date of manufacture.
4. Serial number of module.
5. Design roof live load, design floor live load, snow load, wind and seismic design.
6. Approved quality assurance agency or approved inspection agency.
7. Codes, and standards of construction.
8. Envelope thermal resistance values.
9. Electrical service size.
10. Fuel burning equipment and size.
11. Special limitations if any.

3112.4 Inspection agencies. The building official is authorized to accept reports of inspections conducted by approved inspection agencies during off-site construction of the relocatable building, and to satisfy the applicable requirements of Sections 110.3 through 110.3.10.1.

Reason: In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Relocatable Modular Buildings. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Unlike site-built buildings, which are typically intended to remain on their original site for the life of the building, relocatable modular buildings are designed and intended for relocation, reuse and/or repurposing. Many states have statutes that govern the building and relocating of relocatable modular buildings. For those that do not have state mandated requirements, much confusion and inconsistency exists about the requirements for relocatable modular buildings as existing buildings.
The Modular Building Institute (MBI) (www.modular.org) estimates that there are over 600,000 code compliant relocatable buildings in use in North America today. While it is impossible to determine the exact amount owned by the public at large, MBI estimates that public school districts across North America collectively own and operate about 180,000 relocatable classrooms with the industry owning and leasing an additional 120,000. Additionally, the industry owns and leases approximately 280,000 relocatable buildings for various other business occupancies, including construction site offices and temporary sales offices.
Unique characteristics of relocatable modular buildings that are unlike site-built buildings include:
• There are sections of the IBC that are applicable equally to both site-built and

relocatable modular buildings, particularly for new construction.
• There are sections of the conflicting code sections that cannot be applied to both site-built and relocatable modular buildings, specifically related to construction documents, inspection, and relocation.
The IBC does not have specific requirements on how to treat these buildings. In the absence of clear definitions and requirements that are specific to both new and existing relocatable modular buildings, many code officials attempt to apply similar, but non-related sections of the building code intended for site built buildings to the relocatable modular industry. There are unique attributes to relocatable modular buildings that warrant their own requirements in a new chapter in this code.
Two proposals have been submitted on the subject of relocatable modular buildings. One proposal for new construction (this proposal) and a second proposal to address the relocation of modular buildings (proposal to the IEBC). This proposal includes:
• The definition has been reproduced from the definition that was added to the 2015 IEBC last cycle.
• Identification and inclusion of relocatables into Special Construction, Chapter 31. This chapter applies to new relocatable buildings, and also new site built structures.
Moving this document forward through the ICC code development process will help the modular building industry comply with the intent of the code, provide a clear and consistent path for enforcement professionals, and for compliance by owners of relocatable buildings who wish to re-use or repurpose their existing buildings.

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction due to the re-usable/relocatable nature of such buildings.

G223-15 : 3101.1-KULIK4952

Public Hearing Results

Committee Action: Approved as Submitted

Committee Reason: This is consistent and needed given what was just approved regarding relocatable buildings for the International Existing Building Code. The Commonwealth of Virginia has a program that is very similar to this and it works. Guidance in the code for ths is welcome. We have had difficulty approving relocatable buildings and this would help significantly. We need to know what information should be required for approval for these types of structures.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Vickie Lovell, InterCode Incorporated, representing Modular Building Institute (vickie@intercodeinc.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

107.2.7 Relocatable buildings. Construction documents for relocatable buildings shall comply with this section and Section 3112.

Exception: Manufactured housing used as dwellings.

3112.1 General. The provisions of this section shall apply to relocatable buildings. Relocatable buildings manufactured after the effective date of this code shall comply with the applicable provisions of this code.

> **Exception:** This section shall not apply to manufactured housing used as dwellings.

Commenter's Reason: The committee correctly identified a possible misinterpretation of this section that is specific to relocatable structures used for commercial purposes that are designed to be moved. This section should not be confused with or applied to transportable manufactured housing that is identified in Appendix E of the IRC or NFPA 501. The manufacture, use, and transport of those units are governed by other regulatory documents, including federal, state and/or local requirements.

Cost Impact: Will not increase the cost of construction.
There is no cost impact since it is a clarification as to what types of structures are applicable to this section. The IRC addresses manufactured housing used as dwellings.

G223-15

G226-15

3302.3, 3302.3.1 (New)

Proposed Change as Submitted

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org)

2015 International Building Code

3302.3 Fire safety during construction. Fire safety during construction shall comply with the applicable requirements of this code and the applicable provisions of Chapter 33 of the *International Fire Code.*

Add new text as follows:

3302.3.1 Special requirements for Type V buildings with combustible framing material. Where a building using combustible framing members exceeds the allowable height or number of stories for designation NS in Tables 504.3 or 504.4, the following shall be required:

1.The fire prevention program superintendent responsibilities required in Section 3308 of the International Fire Code shall be provided by an approved agency. The *approved agency* shall meet the following requirements:

1.1. Shall provide all information as necessary for the *building official* to determine that the agency meets the applicable requirements.

1.2. Shall be objective, competent and independent from the contractor or owner responsible for the fire prevention program.

1.3. Shall employ experienced personnel educated in supervising and evaluating safe jobsite practices to provide services to perform a fire watch and the enforcement of the fire prevention program.

2. Qualified personnel of the approved agency shall be onsite 24 hours of each day starting the day that framing materials are delivered to the site up through completion of the building.

3. Smoking and cooking shall be prohibited.

4. Temporary heating and hot work shall be supervised by the fire prevention program superintendent or agency.

Reason: Fires during construction have been on the increase across the U.S and other countries which utilize combustible construction in multi-story buildings. The intensity of these fires put adjacent buildings, businesses and residents at risk until the project is complete, which can take up to 2 years to complete or more if the project stalls. These fires are caused by a multitude of reasons including, but not limited to, arson, smoking, cooking, heating and hot work. Fire service, even in large well equipped jurisdictions cannot effectively stop these fires and most of these incidents end in total loss of the building under construction as well as damaged or destroyed adjacent buildings. Many times adjacent buildings are at risk due to the extreme heat, flying embers and wind speeds, as seen in the recent Los Angeles fire where paper, laying on a desk in an adjacent high rise structure caught fire and 6 six floors of the high rise were on fire.
The International Fire Code requries a Fire Prevention Program Superintendent be provided on all construction sites. This proposal would require that for combustible construction which is over the base allowable height or story, the agency or superintendent be onsite 24 hours a day to mitigate potential fire and conflagration.

Bibliography: http://magazine.sfpe.org/fire-protection-design/fire-safety-buildings-under-construction

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction for buildings of Type V which are higher or contain more stories than the base allowable. The amount would be the cost difference to provide on a 24 hour basis, rather than daily basis which is already required by the fire code.

G226-15 : 3302.3.1 (New)-HALL4716

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There is a need to address the general concepts in this proposal. However, there are problems this proposal. The provisions should be in the International Fire Code. The thresholds should be re-evaluated. We should not need someone on site 24/7 for small buildings. It is large construction sites that should be the focus. Calling out one type of construction is inappropriate. It should apply to all construction types. We cannot regulate arson and stupidity. As written it is unenforceable.

Assembly Motion: As Modified
Online Vote Results: Failed
Support: 8.13% (27) Oppose: 91.87% (305)
Assembly Action : None

Online Floor Modification:

3302.3.1 Special requirements for Type V buildings with combustible framing material. Where a building using combustible framing members exceeds the allowable height or number of stories for designation NS in Tables 504.3 or 504.4, the following shall be required. For the purposes of this section footnote d in Tables 504.3 or 505.4 shall not apply:

1.The fire prevention program superintendent responsibilities required in Section 3308 of the International Fire Code shall be provided by an approved agency. The approved agency shall meet the following requirements:

1.1. Shall provide all information as necessary for the building official to determine that the agency meets the applicable requirements.

1.2. Shall be objective, competent and independent from the contractor or owner responsible for the fire prevention program.

1.3. Shall employ experienced personnel educated in

supervising and evaluating safe jobsite practices to provide services to perform a fire watch and the enforcement of the fire prevention program.

2. Qualified personnel of the approved agency shall be onsite 24 hours of each day starting the day that combustible framing materials are delivered to the site up through completion of the building.

3. Smoking and cooking shall be prohibited.

4. Temporary heating and hot work shall be supervised by the fire prevention program superintendent or agency.

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Building Code

3302.3.1 Special requirements for Type V buildings with combustible framing material. Where a building using combustible framing members exceeds ~~the allowable~~ 3 stories in height ~~or number~~ as measured from grade level, all of ~~stories for designation NS in Tables 504.3 or 504.4,~~ the following shall be required:

1.The fire prevention program superintendent responsibilities required in Section 3308 of the International Fire Code shall be provided by an approved agency. The *approved agency* shall meet the following requirements:

1.1. Shall provide all information as necessary for the *building official* to determine that the agency meets the applicable requirements.

1.2. Shall be objective, competent and independent from the contractor or owner responsible for the fire prevention program.

1.3. Shall employ experienced personnel educated in supervising and evaluating safe jobsite practices to provide services to perform a fire watch and the enforcement of the fire prevention program.

2. Qualified personnel of the approved agency shall be onsite 24 hours of each day starting the day that framing materials are delivered to the site up through completion of the building.

3. Smoking and cooking shall be prohibited.

4. Temporary heating and hot work shall be supervised by the fire prevention program superintendent or agency.

Commenter's Reason: Many jurisdictions do not adopt or enforce the IFC and further do not have a fire official to inspect hot work while under construction. Construction fires are on the rise and based on an ICC report are occurring at about

3 per week across the nation. We agree with the committee and have modified the proposal to be effective when the building is 4 stories or more.
No evidence or data can be found to indicate that non-combustible construction types are experiencing fires that become out of control and burn to the ground. Only construction types using wood products as the primary framing are experiencing problems. Normally we see the stair tower or the pedestal as the only remaining remants. Contrary to comments heard at the hearings, concrete and masonry products do not burn and are not combustible. Anything will melt if enough heat is applied, however building fires with normal contents do not produce enough heat to cause concrete and masonry to melt or fail. Combustible forms for concrete are no longer used.

G226-15

G228-15

3304.2 (New)

Proposed Change as Submitted

Proponent : Jonathan Humble, American Iron and Steel Institute, representing American Iron and Steel Institute (jhumble@steel.org); Jason Thompson, Masonry Alliance for Codes and Standards, representing Masonry Alliance for Codes and Standards (jthompson@ncma.org)

2015 International Building Code

Add new text as follows:

3304.2 **Access for fire fighting** A vehicle access plan for fire fighting, complying with Section 3310 of the *International Fire Code*, shall be submitted to the fire departement for review and approval prior to construction. For Type V construction with combustible building elements, four stories or more above grade plane, an approved vehicle access plan shall also demonstrate access to all sides of the building's perimeter for purposes of fire fighting.

Reason: The intent of IBC Chapter 33 (Safeguards During Construction) is to govern the provisions for safety during construction and the protection of adjacent properties. Unfortunately, the Chapter lacks requirements addressing the ability for fire fighters access to construction sites in cases of emergency. While on the surface this may be viewed as solely a fire department issue, we present a case here indicating that coordination should take place to ensure that this aspect is addressed prior to construction.
The first part of this proposal is to have the simple reference to the International Fire Code Section 3310 (Access for Fire Fighting). It is the intent to use this proposal as a reference to what will be expected during construction and/or demolition of a project in accordance with the International Fire Code.

The second part of the proposal is to add planning requirements for buildings constructed of Type V combustible framing. Recent fires have demonstrated a need to recommend an additional enhancement to the provisions of the IBC. In these cases the size and volume of the buildings in those reported fires demonstrated a need to improve fire and life safeguards during construction. The four (4) story value was determined based on two sources; one – a review of other sections within IBC and IFC Chapter 33 where a height value was referenced (Sections 3310 and 3311); and two – analyzing fires of Type V construction and finding that buildings 4 stories or greater appeared to pose the greater threat to the building project and neighboring properties. Type V combustible construction when under construction represents a large quantity of combustible framing that when exposed will contribute to the spread and intensity of a fire.

Without adequate access, fire fighters have little options in extinguishing the fire or to protect adjacent property and occupants. We are therefore proposing to add the requirement for a plan of access for fire apparatus and fire fighters in order to have the opportunity fight the fire and protect adjacent properties with greater efficiency. We further believe that this proposal will compliment the provisions of the International Fire Code Section 3310, and Appendix D.

Cost Impact: Will increase the cost of construction
Providing vehicle access to all sides of the building's perimeter is currently required under IBC Section 3302.3, which sends the user to IFC Section 3310 (Access for Fire

Fighting). Therefore, for the first part of this proposal there is no cost impact. However, the second part of this proposal will add a minor increase as the plan must be further enhanced to cover vehicle access to all sides of the project. The additional vehicle access to the project by fire fighters should outweigh that additional cost to prepare an enhanced plan as a result of the benefit of the increase access by the fire fighters, thus potentially reducing the spread of fire and the amount of fire damaged area to rebuild. The additional safety measure may also contribute to reducing the cost for construction insurance.

G228-15 : 3304.2 (New)-HUMBLE4598

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The reference to the IFC is acceptable. However, there are many deficiencies in this proposal. These types of requirements do not belong in this section of the code. The proposal is redundant. The information is provided in the International Fire Code. The reference to only Type V construction is concerning. A 4 story building of Residential R3 or R4 occupancy with multiple dwelling units, regardless of area, would be required to have fire department vehicle access on all sides. Requirements related to fire hose extension may be preferable. Highly urban residential buildings and such buildings in rural areas on steeply sloped sites would not be able to comply with these provisions. This is consistent with previous committee action regarding fire department vehicle access on proposals G 143 and G 145. If this is about reviewing something before it is constructed, it belongs in Chapter 1.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Approve as Submitted.

Commenter's Reason: The reluctance by the committee to provide adequate access to potential bonfires is dissappointing. NAHB and the Multi-housing counsel raised this issue themselves as a concern and yet speak against any proposal which will help to mitigate. Construction fires are occurring at 3 per week, according to an ICC report. Opponents cite education in the workforce as the solution, meanwhile construction fires are still wreaking havoc. Prevention is key, but when that fails, fire fighters must be able to access. At what point do we want to start dealing with this issue? I have heard from many that we cannot regulate arson and stupidity. Maybe so, but we can surely mitigate it.

G228-15

G232-15

3314 (New), 3314.1 (New)

Proposed Change as Submitted

Proponent : Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2015 International Building Code

Add new text as follows:

SECTION 3314 FIRE WATCH

3314.1 Fire watch. Where required by the building official or fire code official, fire watch shall be provided during non-working hours for building construction that is combustible construction exceeding 40 feet in height above the lowest adjacent grade. Qualified personnel shall be provided to serve as an on-site fire watch and shall be provided with not less than one approved means for notification of the fire department. The sole duty of personnel providing fire watch shall be to perform constant patrols and watch for the occurrence of fire.

Reason: Add Section 3314 to require fire watch for construction sites with unprotected combustible construction exceeding 40 ft in height. This code change is necessary to protect adjacent properties in the event of fire when a construction site includes no construction activity. Recent fires have demonstrated the need for early notification that can only be provided by fire watch personnel since fire alarm and detection devices are normally not installed a working during framing operations. Early notification will limit the size of the fire and it's impacts on surrounding buildings. Recent fires have demonstrated the tremendous heat release from unprotected combustible framing that impacted buildings more than 80 ft away from the construction site involved. While Section 3304 of the International Fire Code addresses precautions against fire it is mainly focused on construction activities causing a fire. The proposed code change addresses fire safety not caused by construction activities. Table 504.3 permits most Type VB construction with no sprinkler protection to be 40 ft above grade plane. Height above lowest adjacent grade has been selected to facilitate identification by inspection personnel without the need for a survey of the construction site.

Cost Impact: Will increase the cost of construction
This code change is necessary due to public safety concerns for adjoining properties.

G232-15 : 3314 (New)-FATTAH5008

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This belongs in the International Fire Code. The committee had concerns regarding the language "where required by the building or fire official." This could put those officials under scrutiny under various circumstances.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Approve as Submitted.

Commenter's Reason: The reluctance by the committee to approve any measures that would help to mitigate the devastation caused construction fires is dissappointing. Several proposals were brought to this committee and all were dissapproved. Mostly they cited that these provisions belong in the fire code. While they may be best suited in the IFC, many jurisdictions do not have fire officials or even adopt the fire code. For these reasons, we need this in the IBC as well as the fire code. A fire watch would deter arson, provide early detection and possible extinguishment. This is a problem that is very real and needs a solution sooner than later.

G232-15

G236-15

N101 (New), N102 (New), N103 (New), N104 (New), N105 (New), N106 (New), N107 (New), N108 (New), N109 (New), N110 (New), N111 (New)

Proposed Change as Submitted

Proponent : William Hall (jhall@cement.org)

2015 International Building Code

Add new text as follows:

APPENDIX N
ENHANCED BUILDING RESILIENCE

SECTION N101
GENERAL

N101.1 Purpose. The purpose of this appendix is to promote enhanced public health, safety and general welfare and to reduce public and private property losses due to hazards and natural disasters associated with fires, flooding, high winds and earthquakes.

SECTION N102
BUILDING HEIGHTS AND AREA

N102.1 General. In order to limit the impact of fires on the building the building shall comply with Sections N102.1 through N102.3 and the requirements for Chapter 5.

N102.2 Building height, number of stories and allowable area. Building height, numbers of stories and allowable area shall be determined in accordance with N102.2.1 through N102.2.4.

N102.2.1 Height in feet. The maximum height, in feet, of a building shall not exceed the limits specified in Table N102 (1). Table N102 (1) shall be used in lieu of Table 504.3.

N102.2.1.1 Towers, spires, steeples and other roof structures. Towers, spires, steeples and other roof structures shall be permitted to meet the requirements in Section 504.3, Height in feet.

N102.2.2 Number of stories. The maximum number of stories of a building shall not exceed the limits specified in Table N102 (2). Table N102 (2) shall be used in lieu of Table 504.4.

N102.2.3 Allowable area factor, A_t. The allowable area factor, A_t, to be used in determining the allowable area of a building in accordance with Section 506.2.1, 506.2.3 or 506.2.4 shall be as specified in Table N102 (3). For application of Equations 5-1, 5-2 and 5-3 , the value of NS shall be equal to the allowable area factor, At, from Table N102 (3). Table N102 (3) shall be used in lieu of Table 506.2.

TABLE N102 (1)[a, b]
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE

	TYPE OF CONSTRUCTION

OCCUPANCY CLASSIFICATION	Type I		Type II	Type III	Type IV	Type V
	A	B	A	A	HT	A
A, B, E, F, M, S, U	UL	160	65	65	65	50
H-1, H2, H-3, H-5	UL	160	65	65	65	50
H-4	UL	160	65	65	65	50
I-1, Condition 1, I-3	UL	160	65	65	65	50
I-1, Condition 2, I-2	UL	160	65	65	65	50
I-4	UL	160	65	65	65	50
R	UL	160	65	65	65	50

For SI: 1 foot = 304.8 mm.

Note: UL = Unlimited

a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.

b. See Sections 903.2 and N106.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

TABLE N102 (2)[a, b]
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION					
	Type I		Type II	Type III	Type IV	Type V
	A	B	A	A	HT	A
A-1	UL	5	3	3	3	2
A-2	UL	11	3	3	3	2
A-3	UL	11	3	3	3	2
A-4	UL	11	3	3	3	2
A-5	UL	UL	UL	UL	UL	UL
B	UL	11	5	5	5	3
E	UL	5	3	3	3	1
F-1	UL	11	4	3	4	2
F-2	UL	11	5	4	5	3
H-1	1	1	1	1	1	1
H-2	UL	3	2	2	2	1
H-3	UL	6	4	4	4	2
H-4	UL	7	5	5	5	3
H-5	4	3	3	3	3	3
I-1 Condition 1	UL	9	4	4	4	3
I-1 Condition 2	UL	9	4	4	4	3

I-2	UL	4	2	1	1	1
I-3	UL	4	2	2	2	2
I-4	UL	5	3	3	3	1
M	UL	11	4	4	4	3
R-1	UL	11	4	4	4	3
R-2	UL	11	4	4	4	3
R-3	UL	11	4	4	4	3
R-4	UL	11	4	4	4	3
S-1	UL	11	4	3	4	3
S-2	UL	11	5	4	5	4
U	UL	5	4	3	4	2

For SI: 1 foot = 304.8 mm.
Note: UL = Unlimited
a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
b. See Sections 903.2 and N106.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

TABLE N102 (3)[a, b]
ALLOWABLE AREA FACTOR (A_t) IN SQUARE FEET

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION					
	Type I		Type II	Type III	Type IV	Type V
	A	B	A	A	HT	A
A-1	UL	Ul	15,500	14,000	15,000	11,500
A-2	UL	UL	15,500	14,000	15,000	11,5000
A-3	UL	UL	15,500	14,000	15,000	11,5000
A-4	UL	UL	15,500	14,000	15,000	11,5000
A-5	UL	UL	UL	UL	UL	UL
B	UL	UL	37,500	28,500	36,000	18,000
E	UL	UL	26,500	23,500	25,500	18,500
F-1	UL	UL	25,000	19,000	33,500	14,000
F-2	UL	UL	37,500	28,500	50,500	21,000
H-1	21,000	16,500	11,000	9,500	10,500	7,500
H-2[d]	21,000	16,500	11,000	9,500	10,500	7,500
H-3[d]	UL	60,000	26,500	17,500	25,500	10,000
H-4	UL	UL	37,500	28,500	36,000	18,000

H-5	UL	UL	37,500	28,500	36,000	18,000
I-1	UL	55,000	19,000	16,500	18,000	10,500
I-2	UL	UL	15,000	12,000	12,000	9,500
I-3	UL	UL	15,000	10,500	12,000	7,500
I-4	UL	60,500	26,500	23,500	25,500	18,500
M	UL	UL	21,500	18,500	20,500	14,000
R-1	UL	UL	24,000	24,000	20,500	12,000
R-2	UL	UL	24,000	24,000	20,500	12,000
R-3	UL	UL	UL	UL	UL	UL
R-4	UL	UL	24,000	24,000	20,500	12,000
S-1	UL	48,000	26,000	26,000	25,500	14,000
S-2[b, c]	UL	79,000	39,000	39,000	38,500	21,000
U[c]	UL	35,500	19,000	14,000	18,000	9,000

Note: UL = Unlimited
For SI: 1 square foot = 0.0929 m2
a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
b. See Sections 903.2 and N106.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

N102.3 Mixed occupancy and incidental use separations. All buildings containing mixed occupancies and incidental uses shall be provided with fire rated separations in accordance with Sections N102.3.1 and N102.3.2.

N102.3.1 Mixed occupancy separations. All occupancies except incidental uses in Table N102 (5) shall be separated from each other by fire barriers in accordance with Table N102 (4). Table N102 (4) shall be used in lieu of Table 508.4.

TABLE N102 (4)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)[d]

Occupancy	A,E	B	I	R[a]	F-2, S-2[b], U	F-1, S-1, M	H-1	H-2	H-3, H-4, H-5
A, E,	2	2	2	2	1	2	NP	4	3
B	—	N	2	2	1	2	NP	3	2
I	—	—	2	2	2	2	NP	NP	NP
R[a]	—	—	—	2	2[c]	2	NP	NP	NP
F-2, S-2[b], U	—	—	—	—	1	2	NP	4	3
F-1, S-1, M	—	—	—	—	—	2	NP	3	2
H-1	—	—	—	—	—	—	N	NP	NP
H-2	—	—	—	—	—	—	—	N	1

H-3, H-4, H-5	—	—	—	—	—	—	—	—	1

N = No fire rated separation requirement.
NP = Not permitted.
a See Section 420.
b. The required separation from areas used only for private or pleasure vehicles shall be reduced by 1 hour but to not less than 1 hour.
c. See Section 406.3.4.
d. Except as required in Section N104.7.1, N104.7.2, N104.9.1 and N104.9.2, separation is not required between occupancies of the same classification.

N102.3.2 Separation of incidental uses. Incidental accessory occupancies shall be separated from the remainder of the building by fire barriers with a fire resistance rating in accordance with Table N102 (5). Table N102 (5) shall be used in lieu of Table 509.

TABLE N102 (5)
INCIDENTAL USES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour
Refrigerant machinery rooms	1 hour
Hydrogen cut-off rooms, not classified as Group H	1-hour in Group B, F, M, S and U occupancies. 2-hours in Group A, E, I and R occupancies.
Incinerator rooms	2 hour and provide *automatic sprinkler system*
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours and provide automatic fire-extinguishing system
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and provide *automatic sprinkler*

	system
In ambulatory care facilities, laboratories not classified as Group H	1 hour or provide *automatic sprinkler system*
In Group I-2 laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour
In ambulatory care facilities or Group I-2 occupancies waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater	1 hour
In other than ambulatory care facilities and Group I- 2 occupancies, waste and linen collection rooms over 100 square feet	1 hour
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour
Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA , or more than 1000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterrupted power supplies	1-hour in Group B, F, M, S and U occupancies. 2-hours in Group A, E, I and R occupancies.

SECTION N103
TYPES OF CONSTRUCTION

N103.1 General. In order to limit the impact of fires on the building the building shall comply with Section N103.2 and the requirements in Chapter 6.

N103.2 Fire-resistance rating. Building elements shall have a fire resistance rating not less than that specified in Table N103 (1) and exterior walls shall have a fire resistance rating not less than that specified in Table 602 . Table N103 (1) shall be used in lieu of Table 601.

TABLE N103 (1)
FIRE-RESISTANCE RATING REQUIREMENT FOR BUILDING ELEMENTS (HOURS)[a]

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary Structural Frame[g,h]	3[b]	2[b]	1	NP	1	NP	HT	1	NP
Bearing Walls									
Exterior[f,g]	3	2	1	NP	2	NP	2	1	NP
Interior	3[b]	2[b]	1	NP	1	NP	1/HT	1	NP

Tenant Separation Residential spaces Non-residential spaces Mall tenant spaces	See Section N104.7.1 and N104.9.1 See Section N104.7.2 and N104.9.2 See Section 402.4.2.1								
Non-bearing Walls and Partitions Interior[e]	0	0	0	NP	0	NP	See Section 602.4.6	0	NP
Floor Construction and Secondary Members[h]	2	2	1	NP	1	NP	HT	1	NP
Roof Construction and Secondary Members[h]	1½[b]	1[c,d]	1[c,d]	NP	1[c,d]	NP	HT	1[c,d]	NP

For SI: 1 foot = 304.8 mm.
NP = Not Permitted.

[a] The requirements in this table take precedence over Table 601, *Fire resistance rating for building elements.*

[b] Roof supports: Fire-resistance rating of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

[c] Fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire retardant wood members shall be allowed to be used for such unprotected members.

[d] In all occupancies, heavy timber shall be allowed where 1-hour or less fire-resistance rating is required.

[e] Not less than the fire-resistance rating required by other Sections.

[f] Not less than the fire-resistance rating based on fire separation distance (see Table 602).

[g] Not less than the fire-resistance rating as referenced in Section 704.10.

[h] See Section 202 , *Definitions*.

SECTION N104
FIRE PROTECTION FEATURES

N104.1 General. In order to limit the impact of fires on the building the building shall comply with Sections N104.1 through N104.12 and the requirements for Chapter 7.

N104.2 Buildings on the same lot. Exception 2 for the reduced fire resistance rated opening protective for R-2 buildings in Section 705.3, Buildings on the same lot shall not be permitted.

N104.3 Allowable area of openings. The maximum area of unprotected and protected openings permitted in an exterior wall in any story of the building shall not exceed the percentages specified in Table N104 (1). Table N104 (1) shall be used in lieu of Table 705.8.

N104.4 Protected openings. The exception for opening protectives in Section 705.8.2, Protected openings shall not be permitted.

N104.5 Vertical separation of openings. Exception 2 that eliminates vertical separation of openings where automatic sprinklers are present in

Section 705.8.5, Vertical separation of openings shall not be permitted.

N104.6 Parapets. Exceptions 4 and 5 in Section 705.11, Parapet construction that eliminates exterior wall parapets shall not be permitted for Group R-2 occupancies.

N104.7 Fire walls. Fire walls shall meet the requirements of this section.

N104.7.1 Materials. Fire walls for all types of construction shall be of any approved noncombustible material permitted in NFPA 221.

N104.7.2 Fire-resistance rating. The fire-resistance ratings shall meet or exceed the ratings provided in Table N104 (2). Table N104 (2) shall be used in lieu of Table 706.4.

N104.7.3 Exceptions 2 and 4 in Section 706.6, Vertical continuity that allows termination of fire walls at the underside of roof sheathing or decks shall not be permitted.

N104.7.4 Exception 2 in Section 706.8, Openings that allows increased area of openings through fire walls where *automatic sprinkler systems* are present shall not be permitted.

N104.8 Fire barriers. Fire barriers shall comply with the provisions of this section.

N104.8.1 Separation of *dwelling units* and *sleeping units*. The separation between individual *dwelling units* and *sleeping units*, and between *dwelling units* and *sleeping units* and other spaces in the building shall be *fire barrier* assemblies or *horizontal assemblies* with a minimum *fire-resistance rating* of 2-hour.

N104.8.2 Separation of tenant spaces. Individual tenant spaces in a building shall be separated by *fire barrier assemblies* or *horizontal assemblies*, or both, with a minimum *fire-resistance rating* of 1-hour and the requirements of Section 508 Mixed Use and Occupancy.

N104.8.3 Exception 1 in Section 707.6, Openings that allows openings in a fire barrier to be larger than 156 square feet where *automatic sprinkler systems* are provided shall not be permitted.

N104.9 Fire partitions. Fire partitions shall comply with the provisions of this section.

N104.9.1 Fire partitions in Section 708.1 shall not be permitted for walls separating dwelling units in the same building.

N104.9.2 Fire partitions in Section 708.1 shall not be permitted for walls separating sleeping units in the same building.

N104.9.3 Fire partitions in Section 708.3, Fire-resistance rating shall not be permitted for corridor walls separating corridors from dwelling units or sleeping units in the same building.

N104.9.4 Exceptions 1 and 2 in Section 708.3, Fire-resistance rating that allows a reduction in the fire resistance rating of corridors and separations between dwelling units and sleeping units shall not be permitted.

N104.9.5 Exception 6 in Section 708.4, that allows elimination of fireblocking or draftstopping shall not be permitted.

N104.10 Horizontal assemblies. Horizontal assemblies shall comply with the requirements of this Section.

N104.10.1 Separation of *dwelling units* and *sleeping units*. The separation between individual *dwelling units* and *sleeping units*, and

between *dwelling units* and *sleeping units* and other spaces in the building shall be *fire barrier* assemblies or *horizontal assemblies* with a minimum *fire-resistance rating* of 2-hour.

N104.10.2 Separation of tenant spaces. Individual tenant spaces in a building shall be separated by *fire barrier* assemblies or *horizontal assemblies*, or both, with a minimum *fire-resistance rating* of 1-hour and the requirements of Section 508, Mixed Use and Occupancy.

N104.10.3 The exception in Section 711.2.4.3 that allows a reduction of the fire-resistance rating of separations between dwelling unit and sleeping unit where *automatic sprinkler systems* are present shall not be permitted.

N104.11 Enclosed elevator lobby. Sprinkler protection or smoke partitions shall not be permitted to substitute for fire partitions in accordance with Section 708 for elevator lobby enclosures in Section 3007 Elevator lobbies where fire partitions are required.

N104.12 Opening protectives. The provisions of this section shall apply to opening protectives.

N104.12.1 The Exception in Section 716.5.5 that eliminate the maximum transmitted temperature requirements shall not be permitted.

N104.13 Concealed spaces. The provisions of this section shall apply to concealed spaces.

N104.13.1 Groups R-1, R-2, R-3 and R-4. Exceptions 1 and 2 in Section 718.3.2 that eliminate draftstopping where automatic sprinkler systems are present shall not be permitted for Groups R-1, R-2 or R-4 occupancies.

N104.13.2 Other groups. The exception in Section 718.3.3 that eliminates draftstopping where automatic sprinkler systems are present shall not be permitted.

TABLE N104 (1)
MAXIMUM AREA OF EXTERIOR WALL OPENING BASED ON FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION[a]

Fire Separation Distance (feet)	**Degree of Opening Protection**	Allowable Areas[b]
0 to less than 3[c,d]	Unprotected (UP)	Not Permitted
	Protected (P)	Not Permitted
_		
3 to less than 5[e]	Unprotected (UP	Not Permitted
	Protected (P)	15%
_		
5 to less than 10[g]	Unprotected (UP	10%
	Protected (P)	25%
_		
10 to less than 15[f,g]	Unprotected (UP)	15%
Protected (P)	45%	
_		
	Unprotected (UP)	25%

15 to less than 20[f,g]	Protected (P)	75%
–		
20 to less than 25[f,g]	Unprotected (UP)	45%
	Protected (P)	No Limit
–		
25 to less than 30[f,g]	Unprotected (UP)	70%
	Protected (P)	No Limit
–		
30 or greater	Unprotected (UP)	No Limit
	Protected (P)	Not Required

For SI: 1 foot = 304.8 mm
UP = Unprotected openings in buildings
P = Openings protected with an opening protective assembly in accordance with Section 705.8.2

[a] The requirements in this table take precedence over Table 705.8.

[b] Values indicated are the percentage of the area of the exterior wall per story.

[c] For the requirements for fire walls of buildings with differing heights see Section 706.6.1.

[d] For openings in a fire wall for buildings on the same lot, see Section 705.8.

[e] The maximum percentage of unprotected and protected openings shall be 25 percent for Group R-3 occupancies.

[f] The area of unprotected and protected openings shall not be limited for Group R-3 occupancies with a fire separation distance of 5 feet or greater.

[g] Includes buildings accessory to Group R-3.

TABLE N104 (2)
FIRE WALL FIRE-RESISTANCE RATINGS

GROUP	FIRE-RESISTANCE RATING (hours)
A, B, E, H-4, I, R-1, R-2, U	3
F-1, H-3[a], H-5, M, S-1	3
H-1, H-2	4[a]
F-2, S-2, R-3, R-4	2

a. For Group H-1, H-2 or H-3 buildings, also see Sections 415.4 and 415.5.

SECTION N105
INTERIOR FINISHES

N105. 1 General. In order to limit the impact of fires on the *building* the *building* shall comply with Sections N105.1 through N105.3 and the requirements for Chapter 8.

N105.2 Interior wall and ceiling finishes. Interior wall and ceiling finishes and conform to the requirements of this section.

N105.2.1 Finish by occupancy. Interior wall and ceiling finishes based on occupancy shall conform to the requirements in Table N105 (1). Table N105 (1) shall be used in lieu of Table 803.9.

TABLE N105 (1)
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY

GROUP	Interior exit stairways and ramps and exit passageways[a]	Corridors and enclosure for exit access stairways and ramps	Rooms and enclosed spaces[b]
A-1, A-2	A	A	B
A-3, A-4, A-5	A	A	C
B, E, M, R-1, R-4	A	B	C
F	B	C	C
H	A	A	B
I-1	A	B	B
R-2	B	B	C
R-3	A	C	C
S	B	B	C
U	No Restrictions		

For SI: 1 inch = 25.4 mm, 1 square inch = 0.0929m^2

[a] Class C interior finish materials shall be permitted for wainscoting or paneling of not more than 1,000 square feet of applied surface area in the grade lobby where applied directly to a noncombustible base or over furring strips applied to a noncombustible base and fire blocked as required by Section 803.11.1 .

[b] Requirements for rooms and enclosed spaces shall be based upon spaces enclosed by partitions. Where a fire-resistance rating is required for structural elements, the enclosing partitions shall extend from the floor to the ceiling. Partitions that do not comply with this shall be considered enclosing spaces and rooms or spaces on both sides shall be considered as one. In determining the applicable requirements for rooms and enclosed spaces, the specific occupancy thereof shall be the governing factor regardless of the group classification of the building or structure.

N105.2.2 Set-out construction. Exception 1 in Section 803.11.2 shall not be permitted.

N105.3 Interior floor finishes. The Exception in Section 804.4.2 which eliminates the requirement for minimum critical radiant flux for floor finishes and floor coverings in exit enclosures, exit passageways, and corridors where *automatic sprinkler systems* are provided shall not be permitted.

SECTION N106
FIRE PROTECTION SYSTEMS

N106.1 General. In order to limit the impact of fires on the *building* the *building* shall comply with Sections N106.2 through N106.5 and the requirements for Chapter 9.

N106.2 Automatic sprinkler protection. An *approved automatic sprinkler system* shall be provided throughout all new buildings in accordance with Section 903.2 and Sections N106.2.1 through N106.2.7.

N106.2.1 Group A. An *automatic sprinkler system* shall be provided throughout buildings and portions thereof used as Group A occupancies as provided in this section.

N106.2.1.1 Group A-1. An a*utomatic sprinkler system* shall be provided for Group A-1 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 6,000 square feet (557.5 m^2);
2. The *fire area* has an *occupant load* of 150 or more;
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies; or
4. The *fire area* contains a multitheater complex.

N106.2.1.2 Group A-2. An *automatic sprinkler system* shall be provided for Group A-2 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 2,500 square feet (232.2 m^2);
2. The *fire area* has an *occupant load* of 50 or more; or
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

N106.2.1.3 Group A-3. An *automatic sprinkler system* shall be provided for Group A-3 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 6,000 square feet (557.5 m^2);
2. The *fire area* has an *occupant load* of 150 or more; or
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

N106.2.1.4 Group A-4. An *automatic sprinkler system* shall be provided for Group A-4 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 6,000 square feet (557.5 m^2);
2. The *fire area* has an *occupant load* of 150 or more; or
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

N106.2.2 Group E. An *automatic sprinkler system* shall be provided for Group E occupancies as provided in this section:

1. Throughout all Group E *fire areas* greater than 6,000 square feet (557.5 m^2) in area.
2. Throughout every portion of educational buildings below the lowest *level of exit discharge* serving that portion of the building.

Exception: An *automatic sprinkler system* is not required in any area below the lowest *level of exit discharge* serving that area where every classroom throughout the building has at least one exterior *exit* door at ground level.

N106.2.3 Group F-1. An *automatic sprinkler system* shall be provided throughout all buildings containing a Group F-1 occupancy where one of the following conditions exists:

1. A Group F-1 *fire area* exceeds 6,000 square feet (557.5 m^2);
2. A Group F-1 *fire area* is located more than three stories above *grade plane*.
3. The combined area of all Group F-1 *fire areas* on all floors, including any mezzanines, exceeds 12,000 square feet (1105 m^2).
4. A Group F-1 occupancy used for the manufacture of upholstered furniture or mattresses exceeds 2,500 square feet (232 m^2).

N106.2.3.1 Woodworking operations. An *automatic sprinkler system* shall be provided throughout all Group F-1 occupancy *fire areas* that contain woodworking operations in excess of 2,500 square feet (232 m^2) in area which generate finely divided combustible waste or use finely divided combustible materials.

N106.2.4 Group M. An *automatic sprinkler system* shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

1. A Group M *fire area* exceeds 6,000 square feet (557.5 m^2);
2. A Group M *fire area* is located more than three stories above *grade plane*.
3. The combined area of all Group M *fire areas* on all floors, including any mezzanines, exceeds 12,000 square feet (1105 m^2).
4. A Group M occupancy used for the display and sale of upholstered furniture or mattresses exceeds 2,500 square feet (232 m^2).

N106.2.5 Group S-1. An *automatic sprinkler system* shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:

1. A Group S-1 *fire area* exceeds 6,000 square feet (557.5 m^2);
2. A Group S-1 *fire area* is located more than three stories above *grade plane*.
3. The combined area of all Group S-1 *fire areas* on all floors, including any mezzanines, exceeds 12,000 square feet (1105 m^2).
4. A Group S-1 *fire area* used for the storage of commercial trucks or buses where the *fire area* exceeds 2,500 square feet (232 m^2).
5. A Group S-1 occupancy used for the display and sale of upholstered furniture or mattresses exceeds 2,500 square feet (2326 m^2).

N106.2.5.1 Repair garages. An *automatic sprinkler system* shall be provided throughout all buildings used as repair garages in accordance with Section 406 , as shown:

1. Buildings having two or more stories above grade plane, including

basements, with a *fire area* containing a repair garage exceeding 5000 square feet (464 m^2).

2. Buildings no more than one story above *grade plane*, with a *fire area* containing a repair garage exceeding 6,000 square feet (557.5 m^2).
3. Buildings with repair garages servicing vehicles parked in basements.
4. A Group S-1 fire area used for the repair of commercial trucks or buses where the *fire area* exceeds 2,500 square feet (232 m^2).

N106.2.5.2 Bulk storage of tires. Buildings and structures where the area for the storage of tires exceeds 10,000 cubic feet (283 m3) shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

N106.2.6 Group S-2 enclosed parking garages. An *automatic sprinkler system* shall be provided throughout buildings classified as enclosed parking garages in accordance with Section 406.4 as follows:

1. Where the *fire area* of the enclosed parking garage exceeds 6,000 square feet (557.5 m^2); or
2. Where the enclosed parking garage is located beneath other groups.

Exception: Enclosed parking garages located beneath Group R-3 occupancies.

N106.2.6.1 Commercial parking garages. An *automatic sprinkler system* shall be provided throughout buildings used for storage of commercial trucks or buses where the *fire area* exceeds 2,500 square feet (232 m^2).

N106.2.7 Group B. An *automatic sprinkler system* shall be provided throughout buildings containing a Group B occupancy where one of the following conditions exists:

1. A Group B *fire area* exceeds 6,000 square feet (556 m^2).
2. A Group B *fire area* is located more than three stories above *grade plane*.
3. The combined area of all Group B *fire areas* on all floors, including any mezzanines, exceeds 12,000 square feet (1,115 m^2).

N106.3 Automatic Sprinkler Systems. Sprinkler systems shall be designed and installed in accordance with Section 903.3.1.1 NFPA 13 sprinkler systems. Sprinkler systems designed and installed in accordance with Section 903.3.1.2 NFPA 13R sprinkler systems shall not be permitted.

N106.4 Standpipes. Standpipes shall comply with the requirements of this Section.

N106.4.1 The exception to Section 905.4.1, Protection that allows elimination of the fire-resistance rated enclosure for laterals where *automatic sprinkler systems* are provided shall not be permitted.

N106.5 Fire Alarm and Detection Systems. Fire alarms and detection systems shall comply with the provisions of this Section.

N106.5.1 Manual pull station. The number of manual pull stations

required in Section 907 Fire alarm and detection systems for fire alarm systems shall not be permitted to be reduced or eliminated where *automatic sprinkler systems* are provided.

SECTION N107
MEANS OF EGRESS

N107. 1 General. In order to limit the impact of fires on the *building* the *building* shall comply with Sections N107.1 through N107.7 and the requirements for Chapter 10.

N107.2. Means of egress capacity factor. The means of egress capacity factor used for calculating the egress capacity for stairways in Section 1005.3.1 shall be 0.3 inch (7.6 mm) per occupant with no reduction for automatic sprinkler protection in the building. The means of egress capacity factor used for calculating the egress capacity for other egress components in Section 1005.3.2 shall be 0.2 inch (5.1 mm) per occupant with no reduction for automatic sprinkler protection in the building.

N107.2. Accessible means of egress. Accessible means of egress shall comply with the requirements of this Section.

N107.2.1 Exception 2 of Section 1009.3, Stairways that reduces in the clear width between handrails shall not be permitted.

N107.2.2 Exception 5 of Section 1009.3, Stairways that eliminates of areas of refuge shall not be permitted.

N107.2.3 Exception 2 of Section 1009.4, Elevators that eliminates requirements for elevator access from areas of refuge or horizontal exit shall not be permitted.

N107.3 Stairways. The exception for Section 1009.7.4 Stairways that reduces in the clear width between handrails shall not be permitted.

N107.4 Exits and exit access. The exit and exit access shall comply with the requirements in Tables N107 (1) and N107 (2). Table N107 (1) shall be used in lieu of Table 1006.3.2 (1). Table N107 (2) shall be used in lieu of Table 1006.3.2 (2).

TABLE N107 (1)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBERS OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, or second story above grade plane	R-2[a, b]	4 dwelling units	125 feet
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.
NP – Not Permitted
NA – Not Applicable
a. Buildings classified as Group R-2 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and provided with *emergency escape* and *rescue openings* in accordance with Section 1030.

b. This table is used for R-2 occupancies consisting of *dwelling units*. For R-2 occupancies consisting of *sleeping units*, use Table N107 (2).

TABLE N107 (2)
STORIES WITH ONE EXIT OF ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)
First story above or below grade plane	A, B, E, F , M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2[a, b], R-4	10	75
	S[c]	29	75
Second story above grade plane	B, F, M, S[c]	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.
NP – Not Permitted
NA – Not Applicable
a. Buildings classified as Group R-2 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and provided with *emergency escape* and *rescue openings* in accordance with Section 1030.
b. This table is used for R-2 occupancies consisting of *sleeping units*. For R-2 occupancies consisting of *dwelling units*, use Table 1006.3.2(1).
c. The length of *exit access* travel distance in a Group S-2 *open parking garage* shall be not more than 100 feet.

N107.5 Exits and exit access doorways. Exits and exit access doorways shall comply with the requirements of this Section.

N107.5.1 Exception 1 in Section 1006.2.1, Egress based on occupant load and common path of egress travel, that reduces the number of means of egress shall not be permitted.

N107.5.2 Exception 2 of Section 1007.1.1, Two exits or exit access doorways, that reduces the separation distance between exit doors and between exit access doors shall not be permitted.

N107.6 Exit access travel distance. Exit access travel distance shall comply with the requirements in Table N107 (2) and this Section. Table N107 (3) shall be used in lieu of Table 1017.2.

TABLE N107 (3)
EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	DISTANCE (feet)
A, E, F-1, M, R, S-1	200

I-1,I-2	200
B	200
F-2, S-2, U	300
H-1	75
H-2	100
H-3	150
H-4	175
H-5	200
I-3, I-4	150

For SI: 1 foot = 304.8 mm.
a. See the following sections for modifications to *exit access* travel distance requirements:
Section 402.8: For the distance limitation in *malls*.
Section 404.9: For the distance limitation through an *atrium space*.
Section 407.4: For the distance limitation in Group I-2.
Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.
Section 411.4: For the distance limitation in special amusement buildings.
Section 412.7: For the distance limitation in aircraft manufacturing facilities.
Section 1006.2.2.2: For the distance limitation in refrigeration machinery rooms.
Section 1006.2.2.3: For the distance limitation in refrigerated rooms and spaces.
Section 1006.3.2: For buildings with one *exit*.
Section 1017.2.2: For increased distance limitation in Groups F-1 and S-1.
Section 1029.7: For increased limitation in assembly seating.
Section 1028.7: For increased limitation for assembly open-air seating.
Section 3103.4: For temporary structures.
Section 3104.9: For pedestrian walkways.

N107.6.1 Distance limitations through atrium spaces shall conform to Section 404.

N107.6.2 Exit access in buildings with one exit shall conform to Section 1006.3.2.

N107.7 Corridors. Corridors shall comply with the requirements of this section.

N107.7.1 The fire-resistance rating of corridor walls shall be at least 1-hour.

N107.7.2 Exception 2 in Section 1020.4, Dead ends that increases the length of dead-end corridors shall not be permitted.

SECTION N108
EXTERIOR WALLS

N108. 1 General. Exterior wall coverings shall comply with Sections N108.2 through N108.4 and the requirements for exterior walls in Chapter 14 and plastics in Chapter 26.
N108.2 Exterior wall covering limitations for reduced damage from fire. Exterior wall coverings shall comply with N108.2.1 and N108.2.2 to reduce damage from fire exposure. Exception. These criteria shall not

apply where Sections 1406.2.1 through 1406.2.3 are satisfied.

N108.2.1 Vinyl siding and Exterior insulation and finish systems (EIFS). Vinyl siding and Exterior insulation and finish systems (EIFS) shall only be permitted to be installed on exterior walls of buildings with a minimum fire separation distance of 30 feet.

N108.2.2 Fire Separation 5 Feet or Less. Combustible exterior wall coverings are not permitted on exterior walls having a fire separation distance or 5 feet (1524 mm) or less.

N108.3 Exterior wall covering limitations for reduced damage from hail. Vinyl siding and Exterior insulation and finish systems (EIFS) shall comply with sections N108.3.1 and N108.3.2.

N108.3.1 Hail Exposure regions. Hail exposure regions in Figure N108 (1) shall be as follows:

1. **Moderate** – Three but less than six hail reports per 100 square miles.
2. **Severe** - Six or more hail reports per 100 square miles.

N108.3.2 Exterior wall coverings subject to hail exposure. Wall coverings used in regions where hail exposure is Moderate or Severe, as determined in accordance with Section N108.3.1 and Figure N108 (1), shall be tested, classified, and labeled in accordance with UL 2218 or FM 4473.

N108.4 Exterior wall covering limitations for reduced damage from wind. Vinyl siding and Exterior insulation and finish systems (EIFS) shall only be permitted to be installed on exterior walls of buildings located as follows:

1. Regardless of the Risk Category, in areas where V_{ult} as determined in accordance with Figure 1609A does not exceed 115 miles per hour (45 m/s) and the *building height* is less than or equal to 40 feet (12 192 mm) in Exposure C.
2. Regardless of the Risk Category, in areas where V_{ult} as determined in accordance with Figure 1609A exceeds 115 miles per hour (45 m/s) or the *building height* is equal to 40 feet (12192 mm) or greater in Exposure C, vinyl siding or EIFS shall be permitted on exterior walls when tested in accordance with ASTM D5206 or E330 using wind speed not less than the wind speed applicable for the building location determined in accordance with N110.4.
3. Regardless of the Risk Category, in areas where the wind speed is less than 250 mph (98 m/s) according to Figure 304.2(1) of ICC/NSSA 500 or the *building height* is equal to 40 feet (12192 mm) or greater in Exposure C, vinyl siding or EIFS shall be permitted on exterior walls when tested in accordance with ASTM D5206 or E330 using wind speed not less than the wind speed applicable for the building location determined in accordance with N110.4.

FIGURE N108 (1)
AVERAGE FREQUENCY OF HAIL (1-INCH OR LARGER) REPORTS PER 100 SQUARE MILES

SECTION N109
ROOF ASSEMBLIES

N109.1 General. Roof coverings shall also comply with Sections N109.2 through N109.4 and the requirements for Chapter 15.

N109.2 Non-classified roofs. Non-classified roof coverings in accordance with Section 1505.5 Non-classified roofing shall not be permitted on *buildings*.

N109.3 Roofs in Warm and Dry Climates. Roofs in climate zones 1, 2, 3, 4, 5B (dry), and 6B (dry) of the *International Energy Conservation Code* shall have a Class A roof covering or Class A roof assembly according to ASTM E108 or UL 790. For roof coverings where the profile allows a space between the roof covering and roof decking, the space at the eave ends shall be firestopped to preclude entry of flames or embers.

N109.4 Roof coverings subject to hail exposure. Roof coverings used in regions where hail exposure is Moderate or Severe, as determined in accordance with Section N109.4.1 and Figure N108 (1), shall be tested, classified, and labeled in accordance with UL 2218 or FM 4473.

N109.4.1 Hail Exposure regions in Figure N108 (1) shall be as follows:

1. **Moderate** – Three but less than six hail reports per 100 square miles.
2. **Severe** - Six or more hail reports per 100 square miles.

N109.5 Roof drain protection. All roof drains on low-slope roofs located in severe exposure areas in Figure 1904.2 shall have heating strips (heat trace) installed around them to prevent blockage of the drains by ice or ice dams.

SECTION N110
STRUCTURAL

N110.1 General. In order to limit the impact of loads from snow, ice, wind, floods and earthquakes on the *building* the *building* shall comply with Sections N110.1 through N110.9 and the requirements for Chapters 4 and 16.

N110.2 Importance factors by risk category. The minimum design loads for buildings shall be based on the Importance Factors in Table N110 (1).

TABLE N110 (1)
IMPORTANCE FACTORS BY RISK CATEGORY

Risk Category From Table 1604.5 in the IBC	Snow Importance Factor, I_s	Ice Importance Factor, I_i	Wind Importance Factor, I_w	Seismic Importance Factor, I_e	
				0.2 spectral response	
					> 0.40g
I	0.95	0.95	1.20	1.00	1.20
II	1.20	1.20	1.20	1.00	1.20
III	1.25	1.40	1.15	1.25	1.40

IV	1.30	1.40	1.15	1.50	1.65

N110.3 Snowloads. In order to limit the impact of snow on the *building* the Snow Load Importance Factor, I_S, shall be determined from Table N110 (1).

N110.4 Wind loads. In order to limit the impact of wind on the *building* the Wind Load Importance Factor, I_W, shall be determined from Table N110 (1). Component and cladding loads shall be determined for the design wind speed determined in accordance with Section 1609.1.1 Determination of wind loads and defined assuming terrain Exposure C regardless of the actual local exposure and the Wind Load Importance Factor, I_W, determined from Table N110 (1).

N110.4.1 Special wind region requirements. The following items are required in Wind Zones 3 or 4 determined in accordance with Section 1609.1.2.2;

1. Structural roof sheathing panels shall be rated for maximum deflection between supports of L/160 when subjected to a uniform live load of 100 pounds per square foot.
2. Connections and fasteners of structural roof sheathing panels shall be designed to provide panel resistance uplift with a minimum factor of safety of 2.0 based on a design wind pressure using terrain Exposure C.

N110.5 Flood loads. Buildings designed and constructed in flood hazard areas defined in Section 1612.2 Definitions shall comply with the following.

N110.5.1 Floors above base flood elevation. Floors required by ASCE 24 to be built above base flood elevations shall have the floor and their lowest horizontal supporting member not less than the higher of the following:

(a) Design flood elevation,
(b) Base flood elevation plus 3 feet, or
(c) advisory base flood elevation plus 3 feet, or
(d) 500-year flood, if known

N110.5.2 Flood protective works. Buildings designed and constructed in accordance with ASCE 24 shall not consider levees or floodwalls for providing flood protection during the design flood.

N110.5.3 Protection of mechanical, plumbing and electrical systems. Mechanical, plumbing and electrical systems, including plumbing fixtures and utility connections, shall comply with the following:

1. All components shall be elevated above the design *flood* elevation.

   Exception: Electrical systems, equipment and components, and heating, ventilating, air conditioning, and plumbing appliances, plumbing fixtures, duct systems and other service equipment shall be permitted to be located below the design flood elevation provided that all elements are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy. Electrical wiring systems shall be

permitted to be located below the design flood elevation provided they conform to the provisions of NFPA70.

2. Where break away wall systems are required, vertical runs extending below the lowest habitable floor shall be protected by columns or other structural elements that are not part of any break away wall system and shall not be connected to any break away elements.

N110.6 Earthquake loads. In order to limit the impact of seismic events on the *building* the Seismic Load Importance Factor, Ie, shall be determined from Table N110 (1). The building shall also comply with Sections N110.6.1 and N110.6.2.

N110.6.1 Near fault sites. Buildings are not permitted on sites where the ground surface has the known potential to rupture at the structure due to ground motion. Determination shall be based on fault zones (areas subject to severe ground dislocations) that have been established and mapped.

N110.6.2 Seismic Design Categories C, D, E and F. Where the *seismic design category* is determined to be C, D, E or F in accordance with Section 1613.3.5, the building shall be designed by a *registered design professional*.

N110.7 Atmospheric ice loads. In order to limit the impact of atmospheric ice load events on the *building* the ice importance factor, I_i, shall be determined from Table N110 (1).

N110.8 Storm Shelters.*Buildings* and structures shall be provided with storm shelters in accordance with Section 423 and where required by Section N110.8.1 and N110.8.2.

N110.8.1 Other occupancies. Storm shelters shall be provided for buildings of Group A-3 (community halls, schools and libraries), B (civic administration), Group E (day care facilities, accessory to places of religious worship, and occupancies less than 50), I-1, I-2, I-3, M, and R occupants located in:

1. *Hurricane prone regions*
2. Tornado areas where the shelter design wind speed for tornadoes of Figure 304.2(1) of ICC/NSSA 500 is 250 mph or greater.

Exceptions:

1. 1.1. *Buildings* meeting the requirements for shelter design in ICC/NSSA 500.
   1.2. Where the occupants of the proposed *building* have an *approved* storm shelters within 1/4-mile of travel distance of the proposed building available for use and the storm shelter has adequate size to accommodate the added occupant load of the proposed *building*.
   1.3. Where the code official determines the building size, location or occupant load does not warrant a shelter.

N110.8.2 Combined hurricane and tornado shelters. Where combined hurricane and tornado shelters are provided, the shelter shall comply with the more stringent requirements of ICC/NSSA-500 for both types of shelters.

N110.9 Wildland. In order to limit the impact of wildland fires on the building the building shall comply with Sections N110.9.1 through N110.9.3 N110.9.1 Wildland Fires. The provisions of the *International Wildland-Urban Interface Code* shall apply to the construction, alteration, movement, repair, maintenance and use of any building, structure or premises within the wildland interface areas in this jurisdiction.

N110.9.2 Exterior walls. Exterior wall requirements shall be based on the Fire Hazard Severity specified in Table 502.1 in the *International Wildland-Urban Interface Code*.

N110.9.3 Smoke Detection. An automatic smoke detection system in accordance with Section 907 shall be installed throughout buildings located within areas designated by the jurisdiction as being a wild land urban interface area.

SECTION N111
REFERENCED STANDARDS

ASCE/SEI

American Society of Civil Engineers
Structural Engineers Institute
1801 Alexander Bell Drive
Reston, VA 20191-4400

Standard reference number	Title	Referenced in code section number
24-13	Flood Resistant Design and Construction	N110.5.1 N110.5.2

ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959

Standard reference number	Title	Referenced in code section number
E108-11	Standard Test Methods for Fire Tests of Roof Coverings	N109.3
E330-14	Test Methods for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference	N108.4
D5206-13	Standard Test Method for Windload Resistance of Rigid Plastic Siding	N108.4

FM

Factory Mutual Global Research
Standards Laboratories Department
1301 Atwood Avenue, P.O. Box 7500
Johnston, RI 02919

Standard reference number	Title	Referenced in code section

		number
FM 4473-11	Specification Test Standard for Impact Resistance Testing of Rigid Roof Materials by Impacting With Freezer Ice Balls	N108.3.2 N109.4

ICC

International Code Council, Inc.
500 New Jersey Ave, NW
6th Floor
Washington, DC 20001

Standard reference number	Title	Referenced in code section number
IECC—15	International Energy Conservation Code®	N109.3
IWUIC—15	International Wildland-Urban Interface Code®	N110.9.1 N110.9.2
ICC 500-14	ICC/NSSA Standard on the Design and Construction of Storm Shelters	N110.8.1 N110.8.1.2

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02269

Standard reference number	Title	Referenced in code section number
NFPA 13-13	Standard for the Installation of Sprinkler Systems	N106.3
NFPA 13R-13	Standard for the Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height	N106.3

UL

Underwriters Laboratories Inc.
333 Pfingsten Road
Northbrook, IL 60062

Standard reference number	Title	Referenced in code section number
UL 790-04	Standard Test Methods for Fire Tests of Roof Coverings— with revisions through October 2008	N109.3
UL 2218-10	Impact Resistance of Prepared Roof Covering Materials	N108.3.2 N109.4

Reason: This reason statement has the following four segments to explain the reasons for this change: (A) Background on these criteria with regard to the ICC code development process; (B) Substantiation for sustainability through enhanced resilience; (C) Additional life safety benefits for occupants through enhanced

resilience and (D) General background information identifying the need for enhanced property protection and functional resilience to strengthen the built environment.

(A)

Similar criteria were submitted as proposed mandatory provisions of the 2012 edition of the International Green Construction Code. Committee members identified these types of criteria as having merit but recommended that they be proposed to the International Building Code. Proposals were submitted as mandatory requirements within the body of the code and also as an optional appendix. Both approaches where disapproved for the IBC as not being minimum requirements for general construction.

It is noteworthy that state and local jurisdictions are considering criteria for enhanced resilience in their general building code, superseding the criteria of the I-Codes. For example the State of Georgia, under a U.S. Department of Housing and Urban Development grant and adopted an optional appendix to their statewide code to permit jurisdictions to adopt and enforce criteria for enhanced resiliency. Many jurisdictions like Lake County Illinois have adopted flood criteria that is more stringent the than the criteria in the I-Codes. As jurisdictions are adopting more stringent criteria for all buildings, criteria for enhanced resilience should be a prerequisite for all green or sustainable buildings to provide acceptable levels of longevity, durability, robustness, improved life safety, ease of adaptability for reuse as well as resistance to disasters. Such provisions will reduce time and resources for disaster response and recovery as well as helping to assure community continuity by better maintaining revenues and places for employment and to house employees.

The sustainability benefits of enhanced resiliency in building design and construction are not limited to the general continuity and welfare of communities but also have a significant role to minimize negative environmental impacts should disasters occur. The U.S. Army Corps of engineers reported that 44 million cubic yard of building materials and contents were disposed of in land following Hurricane Katrina. Most of the materials were not salvageable because they were contaminated. This is the equivalent of laying 21 cubic foot refrigerators end to end twice around the equator. Provisions for enhanced resiliency such as elevating habitable spaces above a specific natural flood elevation can significantly minimize the amount of materials disposed because they are damaged and contaminated. Reports after the tornado strike in Moore, Oklahoma advised that is placed on a single debris pile the pile of debris would have been more than a mile high. More resilient construction would clearly minimize the amount of damage, may not from a direct path of the funnel of an EF5 tornado, but at least for the lower perimeter wind forces and flying debris.

(B)

The following are reports of dollar loss to property from wind, cold weather and fire disasters.

- The American Society of Civil Engineers reported in *Normalized Hurricane Damage in the United States, 1900 – 2005*, National Hazard Review, ASCE 2008, that property damage from hurricanes was 81 billion dollars in 2005.
- The National Weather Service reports that U.S. property damage due to winter storms and ice exceeded 1.5 billion dollars in 2009.
- *Fire Losses in the United States During 2009* by the National Fire Protection Association, August 2010 shows that property loss due to structure fires in buildings other than one and two family dwellings was approximately 4.5 billion dollars.

Increasing the stringency of the design criteria of buildings for hazards such as wind, snow or fire results in more robust buildings. Such requirements reduce the amount of energy and resources required for repair, removal, disposal and replacement of building components and systems damaged from these disasters. A further benefit is a reduction in the amount of damaged building materials and content entering landfills.

While there has not been a proportionate increase in either frequency of events (which have remained relatively constant) construction put in place (which has maintained an upward trend of trend of 10% per decade or 40% over last four

decades) or demographics (population growth even in the fastest growing regions has 10% per decade or 40% over the same time period) property losses due to natural disasters, adjusted to 2010 dollars, have increased by over a staggering 3500%, see Figure 1. Losses from fire, adjusted to 2010 dollars, have increased by 85% per fire, see Figure 2.

Figure 1: Increase in Property Losses Due to Natural Disasters, excluding Flood[1]

[1]Flood losses not collected by private insurance companies

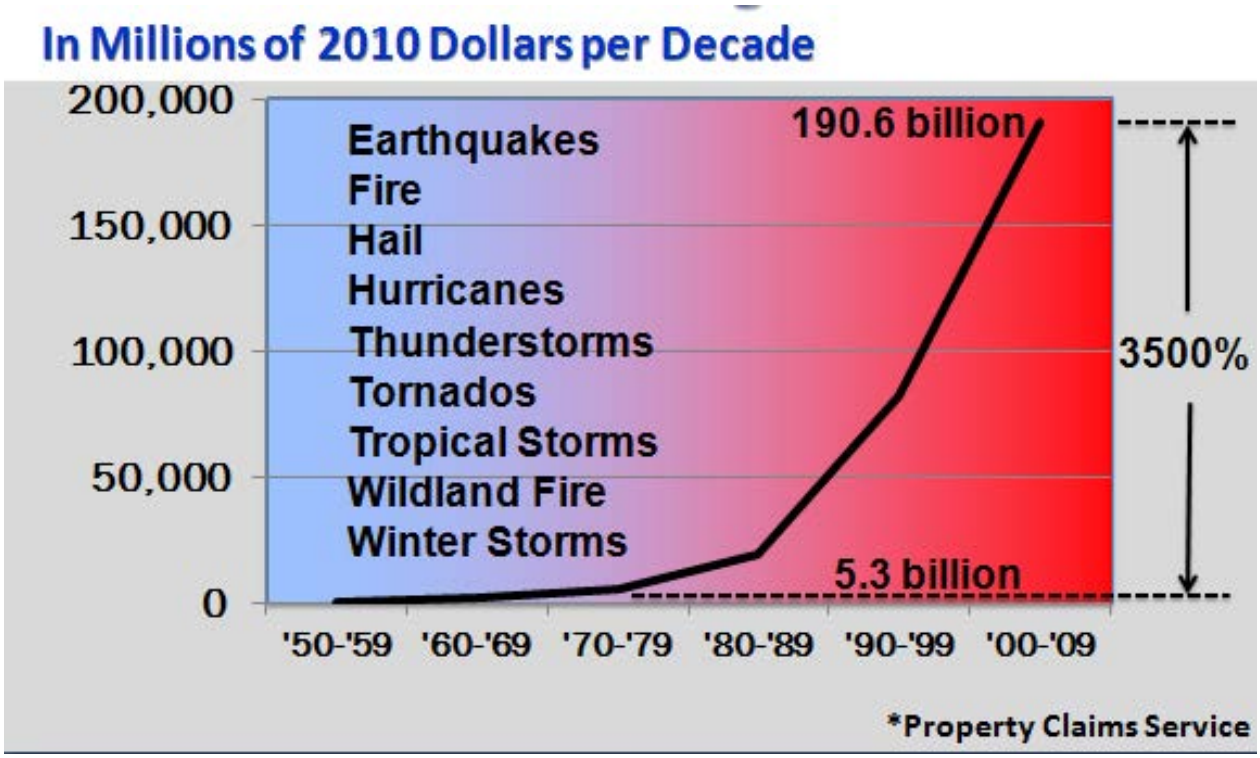
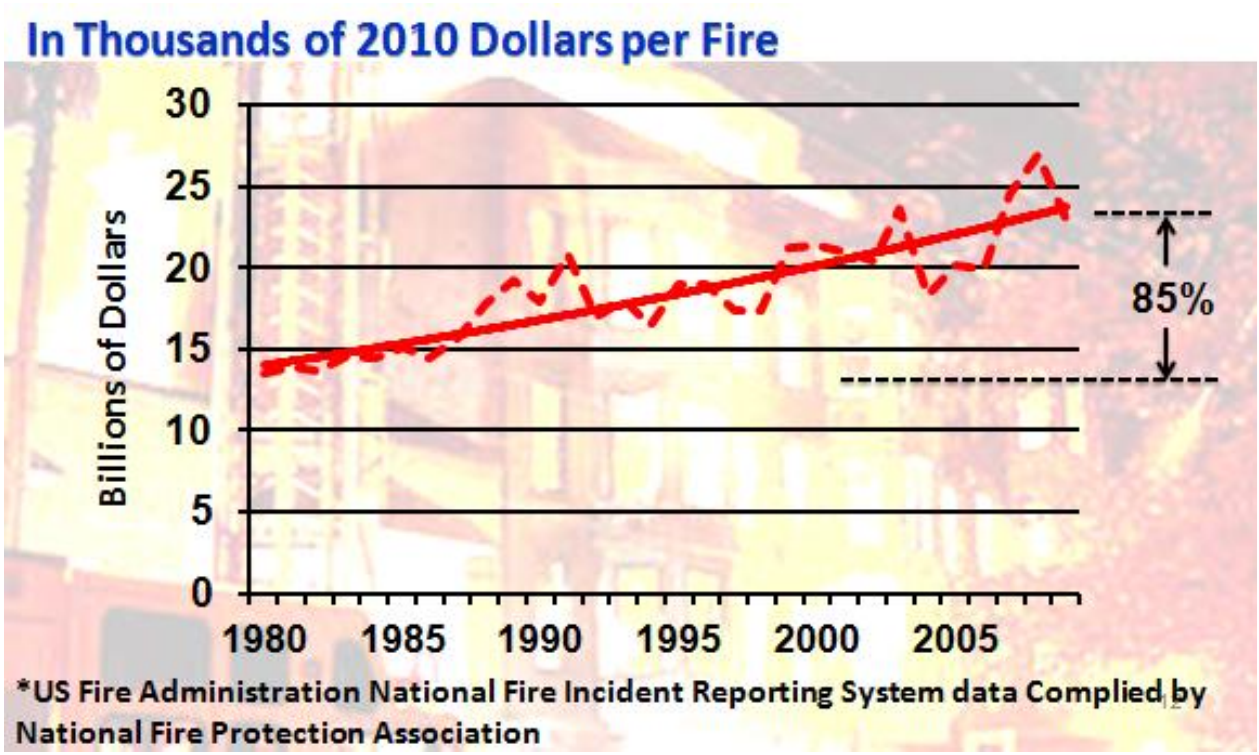


Figure 1: Increase in Fire Losses Per Structure Fire[1]



These specific requirements help reduce commonly occurring property losses.

Flooding:

Hurricanes:

Source: U.S. Navy photo by Chief Petty Officer Johnny Bivera
Katrina Aftermath

Seismic Events:

Source: Federal Emergency Management Agency
Earthquake damage to personal property.

Snow Loads:

Source: Institute for Business and Home Safety
In many instances roof collapse due to snow loads not only results in damage to roof and building

contents below but may also remove lateral support, allowing walls to collapse.

Wind:

Source: Federal Emergency Management Agency, photograph taken by Lara Shane of FEMA

Homes and businesses that are not designed and constructed to provide an appropriate level of resilience are at greater risk in high wind exposures.

Tornadoes:

Source: Oklahoma Department of Emergency Management

Storm shelters and safe rooms really work.

Structure Fires:

Source: Northeast Fire Safety Construction Advisory Council

Fire containment achieved with compartmentation minimizes damage due to fire, smoke and water used for suppression.

External Fire Exposure:

Source: Brick Institute of America Region 9

Siding on a building nearly 100 feet away from a burning building needs to be replaced.

Wildland Fires and Conflagrations After Disasters:

Source: Federal Emergency Management Agency

Topography, vegetative fuels and drought contribute to the potential for devastating wildfires.

Wind Damage - Attachment:

Source: Portland Cement Association, photo by Steve Skalko

Damage to siding and sheathing as a result of high winds.

Wind Damage – System Failure:

Source: Institute for Business & Home Safety
Wind damage to lightweight exterior wall covering.

Hail Impact - Horizontal Surfaces:

Source: National Oceanic and Atmospheric Administration, National Weather Service
Roof shingles need to be removed, disposed and replaced due to hail damage.

Hail Impact - Vertical Surfaces:

Source: National Oceanic and Atmospheric Administration, National Weather Service
Siding needs to be removed, disposed and replaced due to hail damage.

Rodentproofing:

Source: Image provided with permission from Alternative Building Services, www.altbuildingservices.com
Building elements in need of repair due to rodent damage. Undetected damage can compromise the integrity of the building thermal envelope and moisture protection.

Further benefits are enhanced security and occupant comfort; potentially less demand on community resources required for emergency response; and allowing facilities to be more readily adapted for re-use if there is a change of occupancy in the future.

(C)

The 1987 landmark report "America Burning" (Report of the National Commission on Fire Prevention and Control) recommended the increased use of automatic sprinkler systems, and the sprinkler trade-off concept as a financial incentive to encourage the installation of sprinklers in buildings to enhance life safety to the benefit of the building occupants. Automatic fire sprinklers designed for the intended fire load that are installed correctly and maintained to operate with adequate water supply are undoubtedly have contributed significantly to reduced loss of life and reduced property damage. However, for the last two decades hundreds of sprinkler trade-offs have been incorporated into model building codes such as the International Building Code that drastically reduce built-in fire protection when sprinklers are present. The result is considerably less fire safety layers in a building and significant reliance only on the sprinkler system for occupant safety.

There is increasing concern about the reduction or complete elimination of fire rated assemblies based on reliance of automatic sprinklers. To address this concern this proposal removes many of the sprinkler trade-offs in order to encourage increase fire safety and resilience of buildings through a combination of fire resistant construction and sprinklers protection.

Too, natural disasters such earthquakes, hurricanes and floods disrupt water supplies and power to buildings adversely affecting the life safety systems such as sprinkler protection and fire alarm systems. These events also damage gas mains serving buildings resulting in gas leaks and increased fire incidents. Without the fire safety layers of sprinklers and fire alarms, the building will not be able to withstand as big of a fire and will fail sooner, putting occupants and especially firefighters at great risk. This proposal encourages enhanced resilience to these natural disasters to reduce fire safety risk to the occupants.

It has been widely accepted that when buildings are constructed with an appropriate combination of active and passive fire protection using the concept of fire safety layering, they are more resilient and better able to ensure continuity of operations, improved sustainability, increased durability, increased adaptability for reuse, increased resistance to disasters, and improved life safety for occupants and firefighters.

(D)

Minimum building requirements whether through energy codes, plumbing codes, mechanical codes, zoning codes, or basic building codes, do not encourage truly sustainable buildings. The proposal attempts to integrate the concepts of the Whole Building Design Guide (WBDG) into the International Building Code as a non-mandatory Appendix. This allows adopting jurisdictions the option of incorporating code requirements into the building code to improve the resilience of the built environment without the need to add another code to the community requirements.

The WBDG, developed in partnership between the National Institute of Building Sciences (NIBS) and the Sustainable Building Industries Council (SBIC), has as its key concepts: accessible, aesthetics, costeffective, functional/operational, historic preservation, productive, secure/safe, and sustainable.

There are numerous references about the economic, societal, and environmental benefits that result when enhanced functional resilience for resource minimization are integrated into building design and construction. Six examples demonstrating the importance and supporting the concepts are:

1. ***Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities -*** National Institute of Building Sciences Multi-Hazard Mitigation Council - 2005

   One of the findings in this report is "The analysis of the statistically representative sample of FEMA grants awarded during the study period indicates that a dollar spent on disaster mitigation saves society an average of $4." The programs studied often addressed issues and strategies other than enhanced disaster resistance of buildings and other structures. However, more disaster-resistant buildings enhance life safety; reduce costs and environmental impacts associated with repair, removal, disposal, and replacement; and reduce the time and resources required for community

recovery.

2. ***Five Years Later – Are we better prepared? -*** Institute for Business and Home Safety - 2010

   This IBHS report states: "When Hurricane Katrina made landfall on Aug. 29, 2005, it caused an estimated $41.1 billion in insured losses across six states, and took an incalculable economic and social toll on many communities. Five years later, the recovery continues and some residents in the most severely affected states of Alabama, Louisiana and Mississippi are still struggling. There is no question that no one wants a repeat performance of this devastating event that left at least 1,300 people dead. Yet, the steps taken to improve the quality of the building stock, whether through rebuilding or new construction, call into question the commitment of some key stakeholders to ensuring that past mistakes are not repeated." This report indicates that there is a need to implement provisions to make buildings more disaster-resistant. Clearly this suggests that functional resilience should at least be integrated into the design and construction of sustainable buildings.

3. ***National Weather Service Office of Climate, Water and Weather Services -*** National Oceanic and Atmospheric Administration (NOAA) - 2010

   Data provided on the NOAA website [www.weather.gov/os/hazstats.shtml] indicates that the average annual direct property loss due to natural disasters in the United States exceeds of $35,000,000,000. This does not include indirect costs associated with loss of residences, business closures, and resources expended for emergency response and management. These direct property losses also do not reflect the direct environmental impact due to reconstruction after the disasters. Functional resilience will help alleviate the environmental impact and minimize both direct and indirect losses from natural disasters.

4. ***Global Climate Change Impacts in the United States -*** U.S. Global Change Research Program (USGCRP) - 2009

   The USGCRP includes the departments of Agriculture, Commerce, Defense, Energy, Health and Human Services, Interior, State and Transportation; National Aeronautic and Space Administration; Environmental Protection Agency, USA International Development, National Science Foundation and Smithsonian Institution

   The report identifies that: "Climate changes are underway in the United States and are projected to grow. Climate-related changes are already observed in the United States and its coastal waters. These include increases in heavy downpours, rising temperature and sea level, rapidly retreating glaciers, thawing permafrost, lengthening growing seasons, lengthening ice-free seasons in the ocean and on lakes and rivers, earlier snowmelt, and alterations in river flows. These changes are projected to grow." The report further identifies that the: "Threats to human health will increase. Health impacts of climate change are related to heat stress, waterborne diseases, poor air quality, extreme weather events, and diseases transmitted by insects and rodents. Robust public health infrastructure can reduce the potential for negative impacts." Key messages in the report on societal impacts include:

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  - "City residents and city infrastructure have unique vulnerabilities to climate change."
  - "Climate change affects communities through changes in climate-sensitive resources that occur both locally and at great distances."
  - "Insurance is one of the industries particularly vulnerable to increasing extreme weather events such as severe storms, but it can also help society manage the risks."

   Sustainable building design and construction cannot be about protecting the natural environment without consideration of the projected growth in severe

weather. Minimum codes primarily based on past natural events are not appropriate for truly sustainable buildings. Buildings expected to have long term positive impacts on the environment must be protected from these extreme changes in the natural environment. The provisions for improved property protections are necessary to reduce the amount of energy and resources associated with repair, removal, disposal, and replacement due to routine maintenance and damage from disasters. Further such provisions reduce the time and resources required for community disaster recovery.

5. ***Sustainable Stewardship - Historic preservation plays an essential role in fighting climate change -*** Traditional Building, National Trust for Historic Preservation - 2008

   In the article Richard Moe summarizes the results of a study by the Brookings Institution which projects that by 2030 we will have demolished and replaced 82 billion square feet of our current building stock, or nearly 1/3 of our existing buildings, largely because the vast majority of them weren't designed and built to last any longer. Durability, as a component of functional resilience, can reduce these losses.

6. ***Opportunities for Integrating Disaster Mitigation and Energy Retrofit Programs -*** Senate Environment and Public Works Committee Room, Dirksen Senate Office Building, Washington, D.C. - 2010

   During this panel discussion a representative of the National Conference of State Historic Preservation Officers noted that more robust buildings erected prior to 1950 tend to be more adaptable for reuse and renovation. Prior to the mid-1950s most local jurisdictions developed their own building code requirements that uniquely addressed the community's needs, issues and concerns. Pre-1950 building codes typically resulted in more durable and robust construction that lasts longer. The total environmental impact of insulation, high efficiency equipment, components, and appliances, lowflow plumbing fixtures, and other building materials and contents are relatively insignificant when rendered irreparable or contaminated and must be disposed of in landfills after disasters. The US Army Corps of Engineers estimated that after Hurricane Katrina nearly 1.2 billion cubic feet of building materials and contents ended up in landfills. This is analogous to stacking enough refrigerators a fifth of the way to the moon or placing them end to end around the equator of the Earth twice.

Cost Impact: Will increase the cost of construction
Will increase the cost of construction in some areas of the U.S. while reducing the cost of construction in other areas.
To evaluate the cost impact for every occupancy and use, type of construction and building configuration is excessively burdensome for any proposed code change. In an effort to satisfy the request in the code development process that construction type determined by the proponent to be influence by cost was evaluated to the most significant cost potential impacts relative to this proposal, rectangular 4-story Type V multi-family dwellings. The independent third party studies indicate that the cost differential ranges between minus 3% to plus 3% for the most significant cost impact associated with the code change proposal which typically shifted the design from Type V construction to other Types of construction. To accurately evaluate the relative construction cost it was determined that a multi-family residential structure should be schematically designed meeting all of the requirements of the International Building Code. Once designed, the buildings were reviewed for code compliance, and cost estimates would be prepared. The study was conducted by:

Architect & Engineer: *Haas Architects Engineers*[1]
Code Official: *Tim E. Knisely*[2]
Cost Estimation : *Poole Anderson Construction*[3]

The building model chosen for the project was a 4 story multi-family residential structure encompassing approximately 25,000 gross square feet of building area per

floor. The cost comparisons are based on the proposed target building assembled using a typical mix of one and two bedroom dwelling units.

The following construction types and alternates were included in the evaluation:

Conventional Type V framing with Type V floor system

Alternate: Conventional Type VA framing with Type VA floor system
Non-combustible framing with fire-rated non-combustible floors (concrete on steel deck)
Fire-rated load bearing non-combustible construction with fire rated non-combustible floor system (block and plank)
The cost estimate for each building model included the complete fit out of each building with the exception of movable appliances and furniture. For more details on the specific criteria visit: www.psfscac.org.

Analysis: A review of the standards proposed for inclusion in the code, ASTM D 5206-13, FM 4473-11 and UL 2218-10, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28), will be posted on the ICC website on or before April 2, 2014. All other
standards proposed for inclusion into the code are already in Chapter 35 of the 2015 IBC.

G236-15 : Appendix N (New)-Hall 5883

Public Hearing Results

Committee Action: Disapproved

Committee Reason: There are many issues with this proposal, whether it is in an appendix or not. There are items that are missed and sentences that are incomplete. One table is missing Group I-2, I-3 and I-4 occupancies. This is a public policy question. It doesn't make sense to have a resilient building that may survive, while the surrounding infrastructure, such as roadways that lead to it, may not, leaving it on an island. It seems that what we really have is an infrastructure problem, which is not a building code issue.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org) requests Approve as Submitted.

Commenter's Reason: As jurisdictions begin to change out minimum code provisions for more resilient approaches, they will look to model code organizations for information. Since ICC is in the code business, it seems appropriate that ICC would have information. We have provided ICC with a complete resiliency approach that resides in the appendix and will allow jursidictions to pick and choose the approach that is best suited. Since all disasters are not created alike, these provisions provide resiliency measures for all disasters.

G236-15