2015 GROUP A PUBLIC COMMENT AGENDA

SEPTEMBER 30 – OCTOBER 5, 2015
LONG BEACH CONVENTION CENTER
LONG BEACH, CA
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
Committee Action: Disapproved

Assembly Action: None

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.

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@iccasafe.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.
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.

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.
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 be 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 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 within 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.
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 with 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 these products together are required however not all third party inspectors are familiar with these essential items which must be inspected to assure compliance. 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 with third party certifiers to develop these inspection schemes.

**Cost Impact**: Will not increase the cost of construction

Improved inspection procedures at the manufacturing locations will reduce the amount of defects on jobsites before the installation is begun and reduce the amount of time needed for installation.

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**Public Hearing Results**

**Committee Action:** Approved as Submitted

**Committee Reason**: There needs to be emphasis on ensuring quality of these pipe materials. The Annex in the ASTM standards provides additional requirements to ensure a quality product.

**Assembly Motion:** Disapprove

**Online Vote Results:**

Support: 58.97% (92) Oppose: 41.03% (64)

**Assembly Action**: Disapproved

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**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.
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.

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 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 I
308.10 (New)

Proposed Change as Submitted

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@icc safe.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.

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
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>
<thead>
<tr>
<th>HANGER SPACING</th>
<th>MAXIMUM HORIZONTAL SPACING (feet)</th>
<th>MAXIMUM VERTICAL SPACING (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brass pipe</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Copper or copper-alloy pipe and tubing</td>
<td>42 8</td>
<td>10</td>
</tr>
<tr>
<td>Copper or copper-alloy tubing, 1(\frac{1}{4})-inch diameter and smaller</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Copper or copper-alloy tubing, 1(\frac{1}{2})-inch diameter and larger</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

(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 too 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 will not increase the cost of construction as this is only a clarification in the name of a product

**Public Hearing Results**

**Committee Action:** Disapproved

**Committee Reason:** Many people are not going to understand what copper alloy is especially when the standards for the materials still having a title that includes the term "brass". Would like to see a public comment that retains two separate rows, one for copper alloy pipe at 10 foot horizontal spacing and one for copper alloy tubing at 8 foot horizontal spacing.
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>
<thead>
<tr>
<th>PIPING MATERIAL</th>
<th>MAXIMUM HORIZONTAL SPACING (feet)</th>
<th>MAXIMUM VERTICAL SPACING (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper or copper-alloy pipe and tubing</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Copper or copper-alloy tubing</td>
<td>8</td>
<td>10</td>
</tr>
</tbody>
</table>

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.
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.

**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 committee 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.
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.


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.

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**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:**
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 committee 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.
**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 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.

**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 testing of components frequently 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.
**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>
<thead>
<tr>
<th>NO.</th>
<th>CLASSIFICATION</th>
<th>OCCUPANCY</th>
<th>DESCRIPTION</th>
<th>MALE</th>
<th>FEMALE</th>
<th>MALE</th>
<th>FEMALE</th>
<th>BATHTUBS/ SHOWERS</th>
<th>DRINKING FOUNTAIN (SEE SECTION 410)</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1</td>
<td></td>
<td>Theaters and other buildings for the performing arts and motion pictures</td>
<td>1 per 125 1 per 65 1 per 200 — 1 per 500 1 service sink</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-2</td>
<td></td>
<td>Nightclubs, bars, taverns, dance halls and buildings for similar purposes</td>
<td>1 per 40 1 per 40 1 per 75 — 1 per 500 1 service sink</td>
<td></td>
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</tr>
<tr>
<td>1</td>
<td>Assembly</td>
<td>Restaurants, banquet halls and food courts</td>
<td>1 per 75 1 per 75 1 per 200 — 1 per 500 1 service sink</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Casinos</td>
<td>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</td>
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<tr>
<td>A-3</td>
<td></td>
<td>Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums</td>
<td>1 per 125 1 per 65 1 per 200 — 1 per 500 1 service sink</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Passenger terminals and transportation facilities

<table>
<thead>
<tr>
<th></th>
<th>MALE</th>
<th>FEMALE</th>
<th>BATHTUBS/SHOWERS</th>
<th>DRINKING FOUNTAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 per 500</td>
<td>1 per 500</td>
<td>1 per 750</td>
<td>1 per 1,000</td>
</tr>
</tbody>
</table>

Places of worship and other religious services

<table>
<thead>
<tr>
<th></th>
<th>MALE</th>
<th>FEMALE</th>
<th>BATHTUBS/SHOWERS</th>
<th>DRINKING FOUNTAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 per 150</td>
<td>1 per 75</td>
<td>1 per 200</td>
<td>1 per 1,000</td>
</tr>
</tbody>
</table>

(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-ft² 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.

Public Hearing Results

The following is errata that was posted on the ICC website:

<table>
<thead>
<tr>
<th>NO.</th>
<th>CLASSIFICATION</th>
<th>OCCUPANCY</th>
<th>DESCRIPTION</th>
<th>WATER CLOSETS (URINALS: SEE SECTION 419.2)</th>
<th>LAVATORIES</th>
<th>BATHTUBS/SHOWERs</th>
<th>DRINKING FOUNTAIN (SEE SECTION 410)</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A-1d</td>
<td>Assembly</td>
<td>Theaters and other buildings for the performing arts and motion pictures</td>
<td>1 per 125</td>
<td>1 per 65</td>
<td>1 per 200</td>
<td>—</td>
<td>1 per 500</td>
</tr>
<tr>
<td></td>
<td>A-2d</td>
<td></td>
<td>Nightclubs, bars, taverns, dance halls and buildings for similar purposes</td>
<td>1 per 40</td>
<td>1 per 40</td>
<td>1 per 75</td>
<td>—</td>
<td>1 per 500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restaurants, banquet halls and food courts</td>
<td>1 per 75</td>
<td>1 per 75</td>
<td>1 per 200</td>
<td>—</td>
<td>1 per 500</td>
</tr>
<tr>
<td>Casinos</td>
<td>1 per 100 for the first 400 and 1 per 250 for the remainder exceeding 400</td>
<td>1 per 50 for the first 400 and 1 per 150 for the remainder exceeding 400</td>
<td>1 per 250 for the first 750 and 1 per 500 for the remainder exceeding 750</td>
<td>—</td>
<td>1 per 1,000</td>
<td>1 service sink</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 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**

(See Sections 403.1.1 and 403.2)

<table>
<thead>
<tr>
<th>NO.</th>
<th>CLASSIFICATION</th>
<th>OCCUPANCY</th>
<th>DESCRIPTION</th>
<th>WATER CLOSETS (URINALS: SEE SECTION 419.2)</th>
<th>LAVATORIES</th>
<th>BATHTUBS/SHOWERS (SEE SECTION 410)</th>
<th>DRINKING FOUNTAIN (SEE SECTION 410)</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Assembly</td>
<td>A-1d</td>
<td>Theaters and other buildings for the performing arts and motion pictures</td>
<td>1 per 125</td>
<td>1 per 65</td>
<td>1 per 200</td>
<td>—</td>
<td>1 per 500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A-2d</td>
<td>Nightclubs, bars, taverns, dance halls and buildings for similar</td>
<td>1 per 40</td>
<td>1 per 40</td>
<td>1 per 75</td>
<td>—</td>
<td>1 per 500</td>
</tr>
<tr>
<td>Purposes</td>
<td>1 per 75</td>
<td>1 per 75</td>
<td>1 per 200</td>
<td>—</td>
<td>1 per 500</td>
<td>1 service sink</td>
<td></td>
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<tr>
<td>Restaurants, banquet halls and food courts</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Casinos, Gaming Areas</td>
<td>1 per 100 for the first 400 and 1 per 250 for the remainder exceeding 400</td>
<td>1 per 50 for the first 400 and 1 per 150 for the remainder exceeding 400</td>
<td>1 per 250 for the first 750 and 1 per 500 for the remainder exceeding 750</td>
<td>—</td>
<td>1 per 1,000</td>
<td>1 service sink</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums</td>
<td>1 per 125</td>
<td>1 per 65</td>
<td>1 per 200</td>
<td>—</td>
<td>1 per 500</td>
<td>1 service sink</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger terminals and transportation facilities</td>
<td>1 per 500</td>
<td>1 per 500</td>
<td>1 per 750</td>
<td>—</td>
<td>1 per 1,000</td>
<td>1 service sink</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Places of worship and other religious services</td>
<td>1 per 150</td>
<td>1 per 75</td>
<td>1 per 200</td>
<td>—</td>
<td>1 per 1,000</td>
<td>1 service sink</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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
**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>
<thead>
<tr>
<th>NO.</th>
<th>CLASSIFICATION</th>
<th>OCCUPANCY</th>
<th>DESCRIPTION</th>
<th>WATER CLOSETS (URINALS: SEE SECTION 419.2)</th>
<th>LAVATORIES</th>
<th>BATHTUBS/SHOWERS</th>
<th>DRINKING FOUNTAIN (SEE SECTION 410)</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MALE</td>
<td>FEMALE</td>
<td>MALE</td>
<td>FEMALE</td>
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</tr>
<tr>
<td>1</td>
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<td>Theaters and other buildings for the performing arts and motion pictures</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>A-2&lt;sup&gt;d&lt;/sup&gt;</td>
<td>Nightclubs, bars, taverns, dance halls and buildings for similar purposes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>A-3&lt;sup&gt;d&lt;/sup&gt;</td>
<td>Restaurants, banquet halls and food courts</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums</td>
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<td>Passenger terminals and transportation facilities</td>
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<td></td>
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<td>Places of worship and other religious</td>
<td></td>
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<td>NO.</td>
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<td>BATHTUBS/SHOWERS (SEE SECTION 410)</td>
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<td>1</td>
<td>Assembly</td>
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<td>Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities</td>
<td></td>
<td></td>
<td></td>
<td>1 service sink=</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>A-5</td>
<td>Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities</td>
<td></td>
<td></td>
<td></td>
<td>1 service sink=</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Business</td>
<td>B</td>
<td>Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses</td>
<td></td>
<td></td>
<td></td>
<td>1 service sink=</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Educational</td>
<td>E</td>
<td>Educational facilities</td>
<td></td>
<td></td>
<td></td>
<td>1 service sink=</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Factory and industrial</td>
<td>F-1 and F-2</td>
<td>Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials</td>
<td></td>
<td></td>
<td></td>
<td>1 service sink=</td>
<td></td>
</tr>
<tr>
<td>NO.</td>
<td>CLASSIFICATION</td>
<td>OCCUPANCY</td>
<td>DESCRIPTION</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>6</td>
<td>Mercantile</td>
<td>M</td>
<td>Retail stores, service stations, shops, salesrooms, markets and shopping centers</td>
<td></td>
<td>WATER CLOSETS (URINALS: SEE SECTION 419.2)</td>
<td>LAVATORIES</td>
<td>BATHTUBS/SHOWERS</td>
<td>DRINKING FOUNTAIN (SEE SECTION 410)</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>MALE</td>
<td>FEMALE</td>
<td>MALE</td>
<td>FEMALE</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Residential</td>
<td>R-1</td>
<td>Hotels, motels, boarding houses (transient)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 service sink²</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R-2</td>
<td>Dormitories, fraternities,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 service sink²</td>
</tr>
<tr>
<td></td>
<td>Category</td>
<td>Description</td>
<td>Fixtures Required</td>
<td>Notes</td>
<td></td>
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<td></td>
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<td>------------------------------------------------------------------------------</td>
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<td>----------------------------------------------------------------------</td>
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</tr>
<tr>
<td>R-2</td>
<td>Apartment house</td>
<td>Sororities and boarding houses (not transient)</td>
<td>1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling units</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-3</td>
<td>Congregate living facilities with 16 or fewer persons</td>
<td>1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-3</td>
<td>One- and two-family dwellings and lodging houses with five or fewer guestrooms</td>
<td>1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-4</td>
<td>Congregate living facilities with 16 or fewer persons</td>
<td>1 service sink²</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Storage S-1 S-2</td>
<td>Structures for the storage of goods, warehouses, store-house and freight depots. Low and Moderate Hazard.</td>
<td>1 service sink²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(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. 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.

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)

<table>
<thead>
<tr>
<th>NO.</th>
<th>CLASSIFICATION</th>
<th>OCCUPANCY</th>
<th>DESCRIPTION</th>
<th>WATER CLOSETS (URINALS: SEE SECTION 419.2)</th>
<th>LAVATORIES</th>
<th>BATHTUBS/SHOWERS</th>
<th>DRINKING FOUNTAIN (SEE SECTION 410)</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Mercantile</td>
<td>M</td>
<td>Retail stores, service stations, shops, salesrooms, markets and shopping centers</td>
<td>1 per 500</td>
<td>1 per 750</td>
<td>-</td>
<td>1 per 1,000</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Residential</td>
<td>R-1</td>
<td>Hotels, motels, boarding houses (Transient)</td>
<td>1 per sleeping unit</td>
<td>1 per sleeping unit</td>
<td>1 per sleeping unit</td>
<td>-</td>
<td>1 service sink(^a)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dormitories, fraternities, sororities and boarding houses (not transient)</td>
<td>1 per 10</td>
<td>1 per 10</td>
<td>1 per 8</td>
<td>1 per 100</td>
<td>1 service sink(^a)</td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td></td>
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<tr>
<td>R-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-2</td>
<td>Apartment house</td>
<td>1 per dwelling unit</td>
<td>1 per dwelling unit</td>
<td>1 per dwelling unit</td>
<td>1 per dwelling unit</td>
<td>1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling units</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-3</td>
<td>Congregate living facilities with 16 or fewer persons</td>
<td>1 per 10</td>
<td>1 per 10</td>
<td>1 per 8</td>
<td>1 per 100</td>
<td>1 service sink(^b)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-3</td>
<td>One- and two-family dwellings and lodging houses with five or fewer guestrooms</td>
<td>1 per dwelling unit</td>
<td>1 per dwelling unit</td>
<td>1 per dwelling unit</td>
<td>1 per dwelling unit</td>
<td>1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-4</td>
<td>Congregate living facilities with 16 or fewer persons</td>
<td>1 per 10</td>
<td>1 per 10</td>
<td>1 per 8</td>
<td>1 per 100</td>
<td>1 service sink(^c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Storage S-1 S-2</td>
<td>Structures for the storage of goods, warehouses, store-house and freight depots, Low and Moderate Hazard.</td>
<td>1 per 100</td>
<td>1 per 100</td>
<td>See Section 411</td>
<td>1 per 1,000</td>
<td>1 service sink(^d)</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) 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 occupant 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 buildings 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.
**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>
<thead>
<tr>
<th>NO.</th>
<th>CLASSIFICATION</th>
<th>OCCUPANCY</th>
<th>DESCRIPTION</th>
<th>WATER CLOSETS (URINALS: SEE SECTION 419.2)</th>
<th>LAVATORIES</th>
<th>BATHTUBS/SHOWERS</th>
<th>DRINKING FOUNTAIN (SEE SECTION 410)</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A-1d</td>
<td>Theaters and other buildings for the performing arts and motion pictures</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>A-2d</td>
<td>Nightclubs, bars, taverns, dance halls and buildings for similar purposes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Assembly</td>
<td>A-3d</td>
<td>Restaurants, banquet halls and food courts</td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td></td>
<td>Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums</td>
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<td></td>
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<td></td>
<td>Passenger terminals and transportation facilities</td>
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<td></td>
<td></td>
<td></td>
<td>Places of worship and other religious</td>
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</tr>
<tr>
<td>NO.</td>
<td>CLASSIFICATION</td>
<td>OCCUPANCY</td>
<td>DESCRIPTION</td>
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<td>1</td>
<td>Assembly</td>
<td>A-4</td>
<td>Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting</td>
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<td></td>
<td>(cont.)</td>
<td>A-5</td>
<td>Sporting events and activities</td>
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</tr>
<tr>
<td>2</td>
<td>Business</td>
<td>B</td>
<td>Buildings for the transaction of business, professional services, other</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>services involving merchandise, office buildings, banks, light industrial</td>
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<td></td>
<td></td>
<td></td>
<td>and similar uses</td>
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</tr>
<tr>
<td>3</td>
<td>Educational</td>
<td>E</td>
<td>Educational facilities</td>
<td></td>
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<tr>
<td>4</td>
<td>Factory and industrial</td>
<td>F-1 and F-2</td>
<td>Structures in which occupants are engaged in work fabricating, assembly or</td>
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<td></td>
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<td></td>
<td>processing of products or materials</td>
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</tr>
<tr>
<td>NO.</td>
<td>CLASSIFICATION</td>
<td>OCCUPANCY</td>
<td>DESCRIPTION</td>
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<tr>
<td>5</td>
<td>Institutional</td>
<td>L-1</td>
<td>Residential care</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>L-2</td>
<td>Hospitals, ambulatory nursing home care recipient</td>
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<td></td>
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<td></td>
<td>Employees, other than residential care</td>
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<td></td>
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<td>Visitors, other than residential care</td>
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<td></td>
<td>L-3</td>
<td>Prisons</td>
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<td></td>
<td></td>
<td></td>
<td>Reformitories, detention centers, and correctional centers</td>
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<td></td>
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<td></td>
<td>Employees</td>
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<td></td>
<td></td>
<td>L-4</td>
<td>Adult day care and child day care</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>CLASSIFICATION</th>
<th>OCCUPANCY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Mercantile</td>
<td>M</td>
<td>Retail stores, service stations, shops, salesrooms, markets and shopping centers</td>
</tr>
<tr>
<td>7</td>
<td>Residential</td>
<td>R-1</td>
<td>Hotels, motels, boarding houses (transient)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R-2</td>
<td>Dormitories, fraternities, sororities and boarding</td>
</tr>
<tr>
<td>R-2</td>
<td>houses (not transient)</td>
<td>Apartment house</td>
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<td>-----</td>
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</tr>
<tr>
<td>R-3</td>
<td>Congregate living facilities with 16 or fewer persons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-3</td>
<td>One- and two-family dwellings and lodging houses with five or fewer guestrooms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-4</td>
<td>Congregate living facilities with 16 or fewer persons</td>
<td>1 per 10</td>
<td>1 per 10</td>
</tr>
<tr>
<td>8</td>
<td>Storage S-1 S-2</td>
<td>Structures for the storage of goods, warehouses, store-house and freight depots. Low and Moderate Hazard.</td>
<td></td>
</tr>
</tbody>
</table>

(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 classification 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 classification 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)

<table>
<thead>
<tr>
<th>NO.</th>
<th>CLASSIFICATION</th>
<th>DESCRIPTION</th>
<th>WATER CLOSETS (URINALS: SEE SECTION 419.2)</th>
<th>LAVATORIES</th>
<th>BATHTUBS/SHOWERS</th>
<th>DRINKING FOUNTAIN (SEE SECTION 410)</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>MALE</td>
<td>FEMALE</td>
<td>MALE</td>
<td>FEMALE</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Business</td>
<td>Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial, ambulatory care and similar uses</td>
<td>1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50</td>
<td>1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80</td>
<td>—</td>
<td>1 per 100</td>
<td>1 service sink(^c)</td>
</tr>
<tr>
<td></td>
<td>Institutional</td>
<td>Residential care/Custodial care facilities</td>
<td>1 per 10</td>
<td>1 per 10</td>
<td>1 per 8</td>
<td>1 per 100</td>
<td>1 service sink</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medical care recipients in hospitals, ambulatory nursing homes care recipient</td>
<td>1 per room(^c)</td>
<td>1 per room(^c)</td>
<td>1 per 15</td>
<td>1 per 100</td>
<td>1 service sink per floor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Employees in hospitals and nursing homes, other than residential care(^b)</td>
<td>1 per 25</td>
<td>1 per 35</td>
<td>—</td>
<td>1 per 100</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Visitors in hospitals and nursing homes, other than residential care</td>
<td>1 per 75</td>
<td>1 per 100</td>
<td>—</td>
<td>1 per 500</td>
<td>—</td>
</tr>
</tbody>
</table>
Prisons\textsuperscript{b} & 1 per cell & 1 per cell & 1 per 15 & 1 per 100 & 1 service sink  \\
Reformitories, detention centers, and correctional centers\textsuperscript{b} & 1 per 15 & 1 per 15 & 1 per 15 & 1 per 100 & 1 service sink  \\
Employees in reformitories, detention centers and correctional centers\textsuperscript{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.
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 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 7500 ft² (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.

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* (See Sections 403.1.1 and 403.2)

<table>
<thead>
<tr>
<th>NO.</th>
<th>CLASSIFICATION</th>
<th>OCCUPANCY</th>
<th>DESCRIPTION</th>
<th>WATER CLOSETS (URINALS: SEE SECTION 419.2)</th>
<th>LAVATORIES</th>
<th>BATHTUBS/SHOWERS (SEE SECTION 410)</th>
<th>DRINKING FOUNTAIN</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Assembly</td>
<td>Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities</td>
<td>1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500</td>
<td>1 per 200</td>
<td>1 per 150</td>
<td>1 per 1,000</td>
<td>1 service sink</td>
</tr>
<tr>
<td>(cont.)</td>
<td></td>
<td>A-4</td>
<td></td>
<td>1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520</td>
<td>1 per 60</td>
<td>1 per 1,000</td>
<td>1 service sink</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>A-5</td>
<td>Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities</td>
<td>1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500</td>
<td>1 per 200</td>
<td>1 per 150</td>
<td>1 per 1,000</td>
<td>1 service sink</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520</td>
<td>1 per 60</td>
<td>1 per 1,000</td>
<td>1 service sink</td>
<td></td>
</tr>
</tbody>
</table>

(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 language 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.

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.

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 requirement is 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

<table>
<thead>
<tr>
<th>Minimum Number of Required Plumbing Fixtures* (See Sections 403.1.1 and 403.2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
<tr>
<td>b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.</td>
</tr>
<tr>
<td>e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.</td>
</tr>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

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 ft² (697 m²) 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 ft² (697 m²) or more shall provided with, for every
7500 ft² (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.

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 addressed by the International Swimming Pool and Spa Code (ISPSC). Footnote 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 7500 ft² (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 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.

Public Hearing Results

Part II
Committee Action: Disapproved
Committee Reason: Consistency with action on P36 Part I.
Assembly Action: None
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.

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.
**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.

**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
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 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.

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.
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 single 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 address 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 committee's 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 fixtures 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.
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 or fewer.
3. Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 100 or fewer.
4. Separate facilities shall not be required in Group B occupancies in which the maximum occupancy 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.

<table>
<thead>
<tr>
<th>Occupancy</th>
<th>Occupant Load Factor (OLF) (ft²/person)</th>
<th>2015 IBC Max. Area Permitted without Separate Facilities (OLF x 15) (ft²)</th>
<th>Proposed Amended Max. Area Permitted without Separate Facilities (OLF x 30) (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly (unconcentrated)</td>
<td>15</td>
<td>225</td>
<td>450</td>
</tr>
</tbody>
</table>
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 allow Group 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.

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### 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
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.
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 assisted-use 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.


**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.

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**Public Hearing Results**

**Committee Action:** Disapproved

**Committee Reason:** The code identifies male and female facilities 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
Seattle, WA

Center for Constitutional Rights
New York, NY

Design in Public
Seattle, WA

Katy Evans
Tacoma, WA
Melissa Frost  
Princeton School of Architecture  
Princeton, NJ

Gustavo Gordillo  
New York, NY

Jen Graves  
The Stranger  
Puget Sound Community School  
Seattle, WA

David Johnson, Ph.D  
Chicago, IL

Ken R. Koense  
pedaldesignLAB  
Minneapolis, MN 55406

Nicole Tsen Lew, Assoc. AIA  
Seattle, WA

Leilani Lewis  
Northwest African American Museum  
Seattle, WA

Madeleine Lipshie-Williams  
Albert Einstein College of Medicine  
Bronx, NY

Pedro Miguel Santos, Architect

Maxwell Ng, AIA  
Massachusetts Transgender Political Coalition  
Boston, MA

Carol Shasha  
Boynton Beach, FL / Waterford, CT

Christopher Shaw  
Professional Engineer (WA Lic#52181)  
Seattle, WA

Donna Sink, RA  
Principal, Donna Sink Architect PC  
Indianapolis, Indiana

JR Small  
Brooklyn, NY

Lauren Spencer, LMSW  
Brooklyn, NY

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,
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 accessibility 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:


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
Proposed Change as Submitted

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@icc safe.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 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.

Public Hearing Results
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 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 arrangements in some small business tenant spaces have male and female toilet rooms on opposite ends of the tenant space, typically creating unnecessary 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.
P47-15
404.1.1 (New)

Proposed Change as Submitted

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@icc safe.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 Accessibility. 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.

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
Individual Consideration Agenda

Public Comment 1:

Proponent: Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Committee (PMGCAC@iccshall.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 language 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 because of their basic knowledge that “not 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 facilities are in a cluster (as this example illustrates), only 50% of those clustered toilet facilities 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.
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 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. 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 joints 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) 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.

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**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

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**Individual Consideration Agenda**

**Public Comment 1:**

**Proponent:** Janine Snyder, representing Plumbing, Mechanical and Fuel Gas Code Committee (PMGCAC@icc safe.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 acquainted 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.
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 joint 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) 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.

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 \(1\frac{1}{2}\) 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.

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.
NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

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\(\frac{1}{2}\) 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\(\frac{1}{2}\) 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.

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
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 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.

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.

<table>
<thead>
<tr>
<th>Occupancy</th>
<th>Occupant Load Factor (OLF) (ft²/person)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly (unconcentrated)</td>
<td>15</td>
</tr>
<tr>
<td>Day Care</td>
<td>30</td>
</tr>
<tr>
<td>Mercantile</td>
<td>60</td>
</tr>
<tr>
<td>Industrial/Business</td>
<td>100</td>
</tr>
<tr>
<td>Residential</td>
<td>200</td>
</tr>
<tr>
<td>Storage</td>
<td>300</td>
</tr>
</tbody>
</table>

P59-15
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 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]

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 67 33 60 27 57 24 43 16 35 13 31 12 44 20 51 23 49 23 50 22 57 27 67
A 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 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
Committee Action: Disapproved

Assembly Motion: As Submitted

Online Vote Results: Failed
Support: 40.38% (63) Oppose: 59.62% (93)

Assembly Action: None

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 Action Committee (PMGCAC@iccshape.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 jurisdictions 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.
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.

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 tankless water 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:

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°F (37.8°C) and shall be controlled by a temperature actuated mixing valve complying with ASSE 1071.

Commenter's Reason: The maximum temperature supplied to emergency fixtures that can be used for flushing the eyes should be limited to 100 Degrees Fahrenheit. Temperatures in excess of 100 degrees fahrenheit for the required 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 language 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
2. ASSE International. ASSE 1071: Performance Requirements for
   Temperature Actuated Mixing Valves for Plumbed Emergency

**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, instantaneous 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.
**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.
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.
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 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
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 tub-shower 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 tub-shower combination valves required by this section shall be equipped with a means to limit the maximum setting of the valve to 120°F (49°C), which will be field adjusted in accordance with the manufacturer's instructions. In-line thermostatic valves shall not be utilized for compliance with this section.

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, 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.

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 1017 and 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.
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 tub-shower combinations 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.
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.
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.

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.
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.

Public Hearing Results

Part II

Committee Action: Disapproved

Committee Reason: What is "large enough"? This needs to be quantified.

Assembly Motion: 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.
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. 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: 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 easily 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.

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**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

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**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 language for the code, as other materials could be an issue, also the securing of the flexible tubing end should be a new number, because it is a specific requirement, separate 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.
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.

**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:


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
Proposed Change as Submitted

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@icc safe.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.

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@icc-safe.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 arrangement 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 concerning the discharge piping of the relief valve, not the waste piping that collects water discharged from the T&P relief valve discharge pipe(s).
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 \(\frac{3}{4}\) 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 \(\frac{3}{4}\) inch dates back to the Hoover Code days, whereby it was understood that the minimum pipe size for a single family dwelling could be \(\frac{1}{2}\) 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 \(\frac{3}{4}\) inch. Most water services during this period of time were lead pipe. The inside diameter of \(\frac{3}{4}\) inch lead pipe was \(\frac{3}{4}\) inch.

Today's modern home has minimum plumbing requirements that dictate a pipe size of at least \(\frac{3}{4}\) 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 \(\frac{3}{4}\) 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 \(\frac{3}{4}\) 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 \(\frac{3}{4}\) 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 significant 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 \( \frac{3}{4} \) inch (19.1\( \frac{1}{4} \) 25.4 mm) in diameter.

Reason: The minimum pipe size of \( \frac{3}{4} \) inch dates back to the Hoover Code days, whereby it was understood that the minimum pipe size for a single family dwelling could be \( \frac{1}{2} \) 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 \( \frac{3}{4} \) inch. Most water services during this period of time were lead pipe. The inside diameter of \( \frac{3}{4} \) inch lead pipe was \( \frac{3}{4} \) inch. Today's modern home has minimum plumbing requirements that dictate a pipe size of at least \( \frac{3}{4} \) 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 \( \frac{3}{4} \) 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 \( \frac{3}{4} \) 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 \( \frac{3}{4} \) 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.

Public Hearing Results
Part I

Committee Action: Disapproved

Committee Reason: A 3/4 inch minimum 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.

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 bandwagon 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.
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

<table>
<thead>
<tr>
<th>PLUMBING FIXTURE OR FIXTURE FITTING</th>
<th>MAXIMUM FLOW RATE OR QUANTITY b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water closet - public and private</td>
<td>1.61.28 gallons per flushing cycle c</td>
</tr>
<tr>
<td>Water closet—public and remote d</td>
<td>1.6 gpf</td>
</tr>
</tbody>
</table>

(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 efficiency 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 essentially there will be no cost impact in response to adopting these requirements. The attached only reflects the bare cost comparison of the fixtures and does not include the cost saving realized from water conservation.

**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

<table>
<thead>
<tr>
<th>PLUMBING FIXTURE OR FIXTURE FITTING</th>
<th>MAXIMUM FLOW RATE OR QUANTITY b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lavatory, private</td>
<td>2.2 gpm at 60 psi</td>
</tr>
<tr>
<td>Lavatory, public (metering)</td>
<td>0.25 gallon per metering cycle</td>
</tr>
<tr>
<td>Lavatory, public (other than metering)</td>
<td>0.5 gpm at 60 psi</td>
</tr>
<tr>
<td>Shower head a</td>
<td>2.5 gpm at 80 psi</td>
</tr>
<tr>
<td>Sink faucet</td>
<td>2.2 gpm at 60 psi</td>
</tr>
<tr>
<td>Urinal</td>
<td>1.0 gallon per flushing cycle</td>
</tr>
<tr>
<td>Water closet—private and non-remote public d</td>
<td>1.28 gallons per flushing cycle c de</td>
</tr>
<tr>
<td>Water closet—remote public d</td>
<td>1.6 gpf</td>
</tr>
</tbody>
</table>

2015 ICC PUBLIC COMMENT AGENDA
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.

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**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

<table>
<thead>
<tr>
<th>PLUMBING FIXTURE</th>
<th>MAXIMUM FLOW RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR FIXTURE FITTING</td>
<td>OR QUANTITY b</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Water closet-public and private</td>
<td>1.61.28 gallons per flushing cycle c,d,e</td>
</tr>
<tr>
<td>Water closet-public and remote d</td>
<td>1.6 gpf</td>
</tr>
</tbody>
</table>

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 commercial 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 relevant 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.


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
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

<table>
<thead>
<tr>
<th>PLUMBING FIXTURE OR FIXTURE FITTING</th>
<th>MAXIMUM FLOW RATE OR QUANTITY b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urinal</td>
<td>1.0 0.5 gallon per flushing cycle</td>
</tr>
<tr>
<td>Water closet&lt;sub&gt;c,d,e&lt;/sub&gt;</td>
<td>1.6 1.28 gallons per flushing cycle</td>
</tr>
</tbody>
</table>

(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 available today and perform as well as those with higher flush volume. WaterSense criteria for flushing urinals were established in 2009. Manufacturers have responded 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 sector 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

The following list of toilet fixtures was screened from the current MaP database of 3,044 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.

### December 3, 2014

<table>
<thead>
<tr>
<th>Model Report No.</th>
<th>Brand Name</th>
<th>Model Name</th>
<th>Model Number</th>
<th>Map Flushing Performance Score (grams of water)</th>
<th>5-year Test</th>
<th>5-year Test Flushing Volume (gallons)</th>
<th>10-year Test</th>
<th>10-year Test Flushing Volume (gallons)</th>
<th>Performance Rating (MaP)</th>
<th>Product Standards/Certifications</th>
<th>Single-Flush HET</th>
<th>Post-Flush</th>
<th>Foam On Wall</th>
<th>Post-Faucet</th>
<th>Trapway Diameter</th>
</tr>
</thead>
</table>
Cost Impact: Will not increase the cost of construction or maintenance. 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, more than 15 brands currently meet the 1.0 gpf standard in this proposal; for urinals, the cost impact will not increase the cost of construction.

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).

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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

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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
<table>
<thead>
<tr>
<th>PLUMBING FIXTURE OR FIXTURE FITTING</th>
<th>MAXIMUM FLOW RATE OR QUANTITY b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urinal</td>
<td>0.5 gallon per flushing cycle</td>
</tr>
<tr>
<td>Water closet c,d,e</td>
<td>1.281.6 gallons per flushing cycle</td>
</tr>
</tbody>
</table>

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 Technical 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
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>
<thead>
<tr>
<th>PLUMBING FIXTURE OR FIXTURE FITTING</th>
<th>MAXIMUM FLOW RATE OR QUANTITY $^b$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lavatory, private</td>
<td>$\leq 1.5$ gpm at 60 psi</td>
</tr>
<tr>
<td>Shower head $^a$</td>
<td>$\leq 2.0$ gpm at 80 psi</td>
</tr>
</tbody>
</table>

(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-1z0w0vZ1z0z4i4/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-1z0w0vZ1z0z4gq/pl#!).
Public Hearing Results

Part I

Committee Action: Disapproved

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 toilet 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.

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

<table>
<thead>
<tr>
<th>PLUMBING FIXTURE OR FIXTURE FITTING</th>
<th>MAXIMUM FLOW RATE OR QUANTITY&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lavatory faucet</td>
<td>2.2 gpm at 60 psi</td>
</tr>
<tr>
<td>Water closet&lt;sup&gt;c&lt;/sup&gt;</td>
<td>1.61.28 gallons per flushing cycle</td>
</tr>
</tbody>
</table>

(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 sector 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 integral 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 emergency 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

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

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.

<table>
<thead>
<tr>
<th>Model Report No.</th>
<th>Brand Name</th>
<th>Model Name</th>
<th>Model Number</th>
<th>Map Performance Score (gallons of water used per flush)</th>
<th>T-or H Performance Score</th>
<th>Single-flush HET</th>
<th>BowlAVOR Performance</th>
<th>Bowl Size</th>
<th>Trapway Diameter</th>
<th>Pricing, Availability, Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-07006.23</td>
<td>American Standard</td>
<td>O.D. Concealed Trap EL AOA</td>
<td>2621.101: 3075.000 bowl, 4000.101 tank</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>17-07006.23</td>
<td>American Standard</td>
<td>O.D. Concealed Trap EL AOA</td>
<td>2999.101: 3075.000 bowl, 4000.101 tank</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>24-024A</td>
<td>American Standard</td>
<td>Champion 4 HET EL AOA</td>
<td>2790.120: 3109.108 bowl, 4649.018 tank</td>
<td>1,000</td>
<td>2,4</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>24-105A</td>
<td>American Standard</td>
<td>Champion 4 HET EL AOA</td>
<td>2790.120: 3109.108 bowl, 4649.018 tank</td>
<td>1,000</td>
<td>2,4</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>24-105A</td>
<td>American Standard</td>
<td>Champion 4 HET EL AOA</td>
<td>2556.120: 3109.008 bowl, 4259.018 tank</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>24-114A</td>
<td>American Standard</td>
<td>Champion Pro HET EL AOA</td>
<td>2144.104: 3109.104 bowl, 4255.014 tank</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>17-07006.23</td>
<td>American Standard</td>
<td>O.D. Concealed Trap EL AOA</td>
<td>2621.101: 3075.000 bowl, 4000.101 tank</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>30-075A</td>
<td>American Standard</td>
<td>New Order 3,1,5, AOA</td>
<td>2709A.101: 3717.000 bowl, 4019.100 tank</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>24-114A</td>
<td>American Standard</td>
<td>Portsmouth Champion Pro HET EL AOA</td>
<td>2139A.104: 3109.104 bowl, 4255.014 tank</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>17-07006.23</td>
<td>American Standard</td>
<td>Enviro LE (Concealed Trap)</td>
<td>2605.101: 3075.000 bowl, 4000.101 tank</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>24-114A</td>
<td>American Standard</td>
<td>Enviro LE (Concealed Trap)</td>
<td>2138A.104: 3109.104 bowl, 4255.014 tank</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>27-074A</td>
<td>Axess</td>
<td>Reno. EL AOA</td>
<td>190307</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>17-02885.29</td>
<td>Chulis</td>
<td>Cabot EL AOA (fired tank)</td>
<td>21510A bowl, 710340 tank (fired tank)</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>17-01585.34</td>
<td>Dolphin Plumbing Industrial</td>
<td>Chicago EL AOA</td>
<td>25B616 bowl, 519548 tank</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>24-006A</td>
<td>Dolphin Plumbing Industrial</td>
<td>Milton EL AOA</td>
<td>24016 bowl, 54240 tank</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>24-001A</td>
<td>Foremost</td>
<td>District EL AOA (fired tank)</td>
<td>471277-91, 71277-91, 71277-91, 71277-91, 71277-91, 71277-91, 71277-91</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>28-024A</td>
<td>Foremost</td>
<td>HET EL AOA</td>
<td>210502-91, 210502-91</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>27-086A</td>
<td>Gerber</td>
<td>Alerton 4 EL AOA</td>
<td>220-0000, 220-0000, 220-0000, 220-0000, 220-0000, 220-0000</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
<tr>
<td>27-065A</td>
<td>Gerber</td>
<td>Alerton 5 EL AOA</td>
<td>220-0000, 220-0000, 220-0000, 220-0000, 220-0000, 220-0000</td>
<td>1,000</td>
<td>2,3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>H</td>
<td>F</td>
</tr>
</tbody>
</table>
### 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.

---

### Pricing, Availability, Comments

<table>
<thead>
<tr>
<th>Map Report No.</th>
<th>Brand Name</th>
<th>Model Name</th>
<th>Model Number</th>
<th>Map Flush Performance Score (gram of weight required to flush)</th>
<th>3- or 2-Flush Option</th>
<th>Single-Flush or Dual-Flush</th>
<th>Bowl Height</th>
<th>ADA Height</th>
<th>Single-Flush/Double-Flush</th>
<th>Flush Valve/Type</th>
<th>Brand Name/Model Name/Supplier</th>
<th>Retail Price</th>
<th>Trajectory Disruption Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>29-004</td>
<td>Home Depot</td>
<td>Glacier Bay EL ADIA</td>
<td>399-464-926; 311-721 bowl, HD-420 tank (by Hager)</td>
<td>1,000</td>
<td>3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>HET</td>
<td>F</td>
<td>$2,000</td>
<td>Home Depot</td>
<td>Doesn’t meet trajectory criteria</td>
</tr>
<tr>
<td>29-007</td>
<td>Home Depot</td>
<td>Glacier Bay EL ADIA</td>
<td>399-301-720; 311-721 bowl, 311-725 tank (by Hager)</td>
<td>1,000</td>
<td>3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>HET</td>
<td>F</td>
<td>$2,000</td>
<td>Discontinued by HD</td>
<td></td>
</tr>
<tr>
<td>13-00284029</td>
<td>Kohler</td>
<td>Dreamie EL ADIA</td>
<td>K-3680; E3680 (Also sold as Len’s H7-5420), sold as complete toilet set (Includes bowl, tank, seat, and installation accessories)</td>
<td>1,000</td>
<td>3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>HET</td>
<td>F</td>
<td>$2,125</td>
<td>Not currently sold at Kohler’s or elsewhere</td>
<td></td>
</tr>
<tr>
<td>13-00284029</td>
<td>Kohler</td>
<td>Dreamie Touchless EL ADIA</td>
<td>K-3685; E3685 (Also sold as Len’s H7-5420), sold as complete toilet set (Includes bowl, tank, seat, and installation accessories)</td>
<td>1,000</td>
<td>3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>HET</td>
<td>F</td>
<td>$2,125</td>
<td>Not currently sold at Kohler’s or elsewhere</td>
<td></td>
</tr>
<tr>
<td>25-0060</td>
<td>Kohler</td>
<td>Dreamie EL ADIA</td>
<td>K-3680; E3680, sold as complete toilet set (Includes bowl, tank, seat, and installation accessories)</td>
<td>1,000</td>
<td>3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>HET</td>
<td>F</td>
<td>$2,125</td>
<td>Not currently sold at Kohler’s or elsewhere</td>
<td></td>
</tr>
<tr>
<td>27-004</td>
<td>Lowe’s</td>
<td>Aquasense EL ADIA (by Toto)</td>
<td>ST200T7/A007</td>
<td>1,000</td>
<td>3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>HET</td>
<td>F</td>
<td>$2,125</td>
<td>American std, discontinue in mid-2017</td>
<td></td>
</tr>
<tr>
<td>28-024</td>
<td>Kohler</td>
<td>Dreamie EL ADIA</td>
<td>K-3680; E3680, sold as complete toilet set (Includes bowl, tank, seat, and installation accessories)</td>
<td>1,000</td>
<td>3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>HET</td>
<td>F</td>
<td>$2,125</td>
<td>Not currently sold at Kohler’s or elsewhere</td>
<td></td>
</tr>
<tr>
<td>29-004</td>
<td>Niagara Conservation</td>
<td>Home EL ADIA (2-in rough-in)</td>
<td>10425; 301-725 bowl, HD-420</td>
<td>1,000</td>
<td>3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>HET</td>
<td>F</td>
<td>$2,000</td>
<td>Niagara Conservation</td>
<td>See Home Depot (Glacier Bay); this model is identical to PG-SJU-556-526</td>
</tr>
<tr>
<td>20-043</td>
<td>Kohler</td>
<td>Dreamie EL ADIA</td>
<td>K-3685; E3685 (Also sold as Len’s H7-5420), sold as complete toilet set (Includes bowl, tank, seat, and installation accessories)</td>
<td>1,000</td>
<td>3</td>
<td>E</td>
<td>ADA</td>
<td>G</td>
<td>HET</td>
<td>F</td>
<td>$2,000</td>
<td>Discontinued by HD</td>
<td></td>
</tr>
</tbody>
</table>
Committee Action: Disapproved
Assembly Action: None

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”).


Regarding faucets, EPA WaterSense also found that, "Most high-efficiency faucet accessories that restrict flow are no more expensive than 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#!).

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**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 jurisdictions are allowing greater water closet flows in some applications in order to make the drainage system work.

**Assembly Action:** None

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**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.

Table 604.4

**Proposed Change asSubmitted**

**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>
<thead>
<tr>
<th>PLUMBING FIXTURE OR FIXTURE FITTING</th>
<th>MAXIMUM FLOW RATE OR QUANTITY (^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water closet, private use application</td>
<td>1.6 gallons per flushing cycle</td>
</tr>
<tr>
<td>Water closet, public use application</td>
<td>1.28 gallons per full flushing cycle or, where equipped with dual flush device, 1.6 gallons per full flush cycle</td>
</tr>
</tbody>
</table>

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

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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 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 distribution pipe and tubing shall have a pressure rating of not less than 100 psi (690 kPa) at 180°F (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 180°F. 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.

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 water distribution pipe and tubing shall have a pressure rating of not less than 100 psi (690 kPa) at 180°F (82°C).

Committee Reason: For the Modification only:

The terms "hot" and "cold" are unnecessary 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 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 piping 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 180°F. 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.

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 water-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 unnecessary 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.
**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 environment 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 73°F (23°C) (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.

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**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

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**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 of PEX tubing shall have marked the outside of the tubing with the thermoplastic material designation code in accordance with the temperature limitations for PEX tubing complying with ASTM F876. The designation code, the first digit following "PEX" as marked on the tubing exterior shall consist 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 represent a chlorine resistance rating 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 exceeding 140°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 exposed to temperatures in excess of 73°F 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.
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 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: 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 environment 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 73°F (23°C) (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.

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**Public Hearing Results**

**Part II**

**Committee Action:** Disapproved

**Committee Reason:** An excessive amount of text is being added to the code but doesn't 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 compression 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 significant number of compression joint failures especially on hot water piping systems.

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.
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).
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.
Committee Action: Disapproved

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.

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 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.

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:

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 of 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 Legionnaires 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.

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.
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

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)

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**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 nonconnection 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. The 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.

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**Public Hearing Results**

**Committee Action:** Disapproved

**Committee Reason:** This is more of a health and safety issue versus energy savings. The committee prefers the language currently in the code.

**Assembly Action:** None

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**Individual Consideration Agenda**

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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 temperature 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 homeowner will have to deal with the consequences 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.
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 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 A112.15.10/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, Intellecction, 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. Intellecction - We go through a period called, Intellecction 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 conservation 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 TAFC 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 unincirculated 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.*
Hot Water Scald Burns, Time-Temperature Relations, 2nd & 3rd Degree Burns, Adults & Children

Approx. Time versus Burn Type and Temperature

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Ref: Pain Threshold for Adults is 106–108 Deg. F

Normal Adult Reaction Time

Extrapolated
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)
Committee Action: Disapproved

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 provide significant health and safety benefits of controlling Legionella and minimizing scalding by stabilizing system temperatures with a mixing valve.

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 enforceable. This code language will help provide scald protections and system temperature stability.
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 systems shall be limited to prevent water hammer and erosion 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:**
See Page 11 of the Copper Tube Handbook for velocity limitations. These velocity limitations should apply to PEX piping systems with brass fittings also.
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.

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 and it adds a source for determining the proper flow rates for each branch and corresponding size based on friction losses for hot water return piping systems.
Committee Action: Disapproved

Assembly Action: None

**Proposed Change as Submitted**

**Proponent**: Michael Moss, American Backflow Prevention Association, representing American Backflow Prevention Association (msmoss@utah.gov)

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**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 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 platforms 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.

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**Public Hearing Results**

**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.

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2015 ICC PUBLIC COMMENT AGENDA
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.
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 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 than 12 inches from any wall, ceiling or obstacle and shall 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.

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**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

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**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.


608.14.2 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 a 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 a 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 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 than 12 inches from any wall, ceiling or obstacle and shall 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.
Proposed Change as Submitted

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@icc.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 yard hydrants that drain the riser into the ground shall be considered to be as having a stop-and-waste valve below grade.

Exception: Installation of freezeproof yard hydrants that drain the riser into the ground shall be permitted if the potable water supply to such hydrants is protected upstream of 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. 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
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).

**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.
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 yard hydrants that drain the riser into the ground 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).

**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
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. Pipe-applied atmospheric-type 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 vacuum 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 B64.2.1.1, 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.
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 any downstream pressure conditions 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 permissible downstream operating conditions. This is much clearer language 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 permissible downstream operating conditions. This is much clearer language 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.

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.
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

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
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.

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**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

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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 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 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.

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 modifications 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@icc SAFE.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.
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.

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**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

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**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.
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

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>STANDARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ductile iron</td>
<td>AWWA C115/A21.15,</td>
</tr>
<tr>
<td></td>
<td>AWWA C151/A21.51</td>
</tr>
</tbody>
</table>

(Portions of table not shown remain unchanged)

**TABLE 702.2**
UNDERGROUND BUILDING DRAINAGE AND VENT PIPE

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>STANDARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ductile iron</td>
<td>AWWA C115/A21.15,</td>
</tr>
<tr>
<td></td>
<td>AWWA C151/A21.51</td>
</tr>
</tbody>
</table>

(Portions of table not shown remain unchanged)

**TABLE 702.3**
BUILDING SEWER PIPE

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>STANDARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ductile iron</td>
<td>AWWA C115/A21.15,</td>
</tr>
<tr>
<td></td>
<td>AWWA C151/A21.51</td>
</tr>
</tbody>
</table>

(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.
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 than 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.

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@iccsource.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 service. 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 ductile 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.
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.

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.
**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.

**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@icc safe.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 dimensions 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.
Proposed Change as Submitted

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@icc safe.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 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.

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**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.
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
**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 is 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.
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.

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**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 type 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

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**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.
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.

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
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)
Committee/Action: Disapproved

Assembly Action: None

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


Individual Consideration Agenda

Public Comment 1:

Proponent: Larry Gill, representing IPEX USA LLC requests Approve as Modified by this Public Comment.

Modify as Follows:

(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 approximately 60% of the cost of open cut installation. These methods offer significant savings as well as less impact on the surrounding area.
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 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 than 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.
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 compliance 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)
Committee Action: Approved as Modified

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.

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 64 inches (152102 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 Modification 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

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 always required special piping of one of those types.

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.
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 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.
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.


**Cost Impact:** Will not increase the cost of construction
This change provides options to the code user. There are no cost implications.
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.
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 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 purposes. 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.

Cost Impact: Will not increase the cost of construction
This change provides options. As such, there is no cost implication.

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:


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 disapproved 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 Committee 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.
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)

<table>
<thead>
<tr>
<th>Fixture drain pipe size (inches)</th>
<th>Vent connection at a horizontal drain pipe</th>
<th>Vent connection at a vertical drain pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Slope of fixture drain(d)</td>
<td>Sanitary tee fitting fixture drain connection to the vertical drain pipe</td>
</tr>
<tr>
<td></td>
<td>(inches per foot)</td>
<td>Tee-wye fitting fixture drain connection to the vertical drain pipe(c)</td>
</tr>
<tr>
<td></td>
<td>1/8</td>
<td>1/4</td>
</tr>
<tr>
<td>1-1/4</td>
<td>NP</td>
<td>5</td>
</tr>
<tr>
<td>1-1/2</td>
<td>NP</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>NP</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>24</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>32</td>
<td>16</td>
</tr>
</tbody>
</table>

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.

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**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

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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 this Public Comment.

**Modify as Follows:**

2015 International Plumbing Code

TABLE 909.1
MAXIMUM LENGTH OF FIXTURE DRAIN FROM FIXTURE TRAP TO VENT CONNECTIONa,b
(FEET)

<table>
<thead>
<tr>
<th>Fixture drain pipe size (inches)</th>
<th>Vent connection at a horizontal drain pipe</th>
<th>Vent connection at a vertical drain pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sanitary tee fitting fixture drain connection to the vertical drain pipe</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Slope of fixture drain(d^c) (c) (c) (inches per foot)</td>
</tr>
<tr>
<td>1/8</td>
<td>1/4</td>
<td>1/2</td>
</tr>
<tr>
<td>1-1/4</td>
<td>NP</td>
<td>5</td>
</tr>
<tr>
<td>1-1/2</td>
<td>NP</td>
<td>6</td>
</tr>
</tbody>
</table>

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Page 322
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.
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.

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,

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/ASPF20RF/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
**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.

**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
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 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 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 fixture drain and the 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 system 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. 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.

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 language.
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@iccwriting.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 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 fixture drain and the horizontal combination waste and vent pipe. The length 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 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 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. 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 P3105.1 reflects 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.

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
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.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Solids are a larger source 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 routing food waste 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 engineering 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 Institute

**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.
Committee Action: Approved as Submitted

Online Vote Results: Failed
Support: 46.1% (71) Oppose: 53.9% (83)
Assembly Action: None

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.

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
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, engineering 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 Institute

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.
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 enhancing already naturally occurring 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.
Public Hearing Results

Committee Action: Approved as Submitted
Committee Reason: This treatment protocol exists in the standard and is being used in the California 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 interceptors, or any other element of a standard drainage system.

Max Weiss, Executive Director
Plumbing & Drainage Institute
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.

Public Hearing Results

Committee Action: Disapproved

Committee Reason: This proposal will severely restrict the selection of drains that can be used as only a few manufacturers have started 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.

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
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 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 1106.2.1 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.

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**1106.2.1 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.

**1106.2.2 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](http://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 will 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.

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 34 inches (76102 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.