IPMC

2016 GROUP B COMMITTEE ACTION HEARINGS

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2016 GROUP B – PROPOSED CHANGES TO THE INTERNATIONAL FIRE CODE

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TENTATIVE ORDER OF DISCUSSION
2016 PROPOSED CHANGES TO THE INTERNATIONAL FIRE CODE

The following is the tentative order in which the proposed changes to the code will be discussed at the public hearings. Proposed changes which impact the same subject have been grouped to permit consideration in consecutive changes.

Proposed change numbers that are indented are those which are being heard out of numerical order. Indentation does not necessarily indicate that one change is related to another. Proposed changes may be grouped for purposes of discussion at the hearing at the discretion of the chair. Note that some F code change proposals may not be included on this list, as they are being heard by another committee.

NUMBER NOT USED
F129-16

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PM1-16 (Heard by IFC Committee)

IPMC: 703, [F] 703.1, [F] 703.2, [F] 703.3 (New), [F] 703.3.1 (New), [F] 703.3.2 (New), [F] 703.3.3 (New), [F] 703.4 (New), [F] 703.4.1 (New), [F] 703.4.2 (New), [F] 703.4.3 (New), [F] 703.5 (New), [F] 703.6 (New), [F] 703.7 (New), [F] 703.8 (New).

Proponent : Edward Kulik, ICC Building Code Action Committee, representing ICC Building Code Action Committee (bcac@iccsafe.org)

2015 International Property Maintenance Code

SECTION 703 FIRE-RESISTANCE RATINGS

Delete and substitute as follows:

[F] 703.1 Fire-resistance-rated assemblies. ~~The required fire-resistance rating of fire-resistance-rated walls, fire stops, shaft enclosures, partitions and floors shall be maintained.~~
The provisions of this chapter shall govern maintenance of the materials, systems and assemblies used for structural fire resistance and fire-resistance-rated construction separation of adjacent spaces to safeguard against the spread of fire and smoke within a building and the spread of fire to or from buildings.

[F] 703.2 ~~Opening protectives~~ Unsafe conditions. ~~Required opening protectives shall be maintained in an operative condition. Fire and smokestop doors shall be maintained in operable condition. Fire doors and smoke barrier doors shall not be blocked or obstructed or otherwise made inoperable.~~
Where any components are not maintained and do not function as intended or do not have the fire-resistance required by the code under which the building was constructed or altered, such component(s) or portion thereof shall be deemed an unsafe condition, in accordance with Section 110.1.1 of the International Fire Code. Components or portions thereof determined to be unsafe shall be repaired or replaced to conform to that code under which the building was constructed or altered. Where the extent of the conditions of components is such that any building, structure or portion thereof presents an imminent danger to the occupants of the building, structure or portion thereof, the fire code official shall act in accordance with Section 110.2 of the International Fire Code.

Add new text as follows:

[F] 703.3 Maintenance. The required fire-resistance rating of fire-resistance-rated construction, including walls, firestops, shaft enclosures, partitions, smoke barriers, floors, fire-resistive coatings and sprayed fire-resistant materials applied to structural members and fire-resistant joint systems, shall be maintained. Such elements shall be visually inspected by the owner annually and repaired, restored or replaced where damaged, altered, breached or penetrated. Records of inspections and repairs shall be maintained. Where concealed, such elements shall not be required to be visually inspected by the owner unless the concealed space is accessible by the removal or movement of a panel, access door, ceiling tile or entry to the space. Openings made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer and openings made for any reason shall be protected with approved methods capable of resisting the passage of smoke and fire. Openings through fire-resistance-rated assemblies shall be protected by self- or automatic-closing doors of approved construction meeting the fire protection requirements for the assembly.

[F] 703.3.1 Fire blocking and draft stopping Required fire blocking and draft stopping in combustible concealed spaces shall be maintained to provide continuity and integrity of the construction.

[F] 703.3.2 Smoke barriers and smoke partitions Required smoke barriers and smoke partitions shall be maintained to prevent the passage of smoke. Openings protected with approved smoke barrier doors or smoke dampers shall be maintained in accordance with NFPA 105.

[F] 703.3.3 Fire walls, fire barriers, and fire partitions. Required fire walls, fire barriers and fire partitions shall be maintained to prevent the passage of fire. Openings
protected with approved doors or fire dampers shall be maintained in accordance with NFPA 80.

[F] 703.4 Opening protectives. Opening protectives shall be maintained in an operative condition in accordance with NFPA 80. The application of field-applied labels associated with the maintenance of opening protectives shall follow the requirements of the approved third-party certification organization accredited for listing the opening protective. Fire doors and smoke barrier doors shall not be blocked or obstructed, or otherwise made inoperable. Fusible links shall be replaced whenever fused or damaged. Fire door assemblies shall not be modified.

[F] 703.4.1 Signs. Where required by the code official, a sign shall be permanently displayed on or near each fire door in letters not less than 1 inch (25 mm) high to read as follows:

1. For doors designed to be kept normally open: FIRE DOOR—DO NOT BLOCK.
2. For doors designed to be kept normally closed: FIRE DOOR—KEEP CLOSED.

[F] 703.4.2 Hold-open devices and closers. Hold-open devices and automatic door closers shall be maintained. During the period that such device is out of service for repairs, the door it operates shall remain in the closed position.

[F] 703.4.3 Door operation. Swinging fire doors shall close from the full-open position and latch automatically. The door closer shall exert enough force to close and latch the door from any partially open position.

[F] 703.5 Ceilings. The hanging and displaying of salable goods and other decorative materials from acoustical ceiling systems that are part of a fire-resistance-rated horizontal assembly, shall be prohibited.

[F] 703.6 Testing. Horizontal and vertical sliding and rolling fire doors shall be inspected and tested annually to confirm operation and full closure. Records of inspections and testing shall be maintained.

[F] 703.7 Vertical shafts. Interior vertical shafts including stairways, elevator hoistways, service and utility shafts, that connect two or more stories of a building shall be enclosed or protected as required in Chapter 11 of the International Fire Code. New floor openings in existing buildings shall comply with the International Building Code.

[F] 703.8 Opening protective closers. Where openings are required to be protected, opening protectives shall be maintained self-closing or automatic-closing by smoke detection. Existing fusible-link-type automatic door-closing devices shall be replaced if the fusible link rating exceeds 135°F (57°C).

Reason: This proposal replaces the IPMC Section 703 requirements with applicable extracts from the IFC. This proposal simply correlates the requirements in the IPMC and the IFC without changing the requirements from the IFC, other than editorial changes necessary so the format works with the IPMC.
The new sections come from the following locations:

Proposed IPMC Section	Duplicated from IFC Section
703.1 Fire-resistance-rated assemblies	701.1 Scope
703.2 Unsafe conditions	701.2 Unsafe conditions
703.3 Maintenance	703.1 Maintenance
703.3.1 Fire blocking and draft stopping	703.1.1 Fire blocking and draft stopping
703.3.2 Smoke barriers and smoke partitions	703.1.2 Smoke barriers and smoke partitions
703.3.3 Fire walls, fire barriers and fire partitions	703.1.3 Fire walls, fire barriers and fire partitions
703.4 Opening protectives	703.2 Opening protectives
703.4.1 Signs	703.2.1 Signs
703.4.2 Hold-open devices and closers	703.2.2 Hold-open devices and closers
703.4.3 Door operation	703.2.3 Door operation
703.5 Ceilings	703.3 Ceilings
703.6 Testing	703.4 Testing
703.7 Vertical shafts	704.1 Enclosure
703.8 Opening protective closers	704.2 Opening protectives

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2014 and 2015 the BCAC has held 5 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: **BCAC.** The ICC Fire Code Action Committee (FCAC) also supports this proposal.

Cost Impact: Will not increase the cost of construction
This proposal does not add new requirements; it merely correlates code requirements contained in the IFC with the IPMC.

PM1-16 : [F] 703-KULIK5470

PM2-16 (Heard by IFC Committee)

IPMC: 704, Table 704.2 (New), [F] 704.1, [F] 704.1.1, [F] 704.1.2, [F] 704.1.2 (New), [F] 704.2 (New), [F] 704.2.1 (New), [F] 704.2.2 (New), [F] 704.3 (New), [F] 704.3.1 (New), [F] 704.3.2 (New), [F] 704.3.3 (New), [F] 704.3.4 (New), [F] 704.3.5 (New), [F] 704.4 (New), [F] 704.5 (New), [F] 704.5.1 (New), [F] 704.5.2 (New), [F] 704.6.1 (New).

Proponent : Michael O'Brian, representing the IAFC fire life safety section

2015 International Property Maintenance Code

SECTION 704 FIRE PROTECTION SYSTEMS

Revise as follows:

[F] 704.1 General. ~~Systems~~
Fire detection,~~ devices and equipment to detect a fire, actuate an~~ alarm, ~~or suppress or control a fire or any combination thereof~~ and extinguishing systems, mechanical smoke exhaust systems, and smoke and heat vents shall be maintained in an ~~operable~~ operative condition at all times~~ in accordance with the *International Fire Code*~~, and shall be replaced or repaired where defective.

[F] 704.1.1 ~~Automatic sprinkler systems~~ Installation. ~~Inspection, testing and maintenance of automatic sprinkler~~ Fire protection systems shall be maintained in accordance with ~~NFPA 25~~ the original installation standards for that system. Required systems shall be extended, altered or augmented as necessary to maintain and continue protection where the building is altered, remodeled or added to. Alterations to fire protection systems shall be done in accordance with applicable standards.

Add new text as follows:

[F] 704.1.2 Required fire protection systems. Fire protection systems required by the International Fire Code or the International Building Code shall be installed, repaired, operated, tested and maintained in accordance with this code. A fire protection system for which a design option, exception or reduction to the provisions of the International Fire Code or the International Building Code has been granted shall be considered to be a required system.

[F] 704.2 Standards. Fire protection systems shall be inspected, tested and maintained in accordance with the referenced standards listed in Table 704.2 and as required in this section.

[F] 704.2.1 Records. Records of all system inspections, tests and maintenance required by the referenced standards shall be maintained.

[F] 704.2.2 Records information. Initial records shall include the name of the installation contractor, type of components installed, manufacturer of the components, location and number of components installed per floor. Records shall also include the manufacturers' operation and maintenance instruction manuals. Such records shall be maintained for the life of the installation.

[F] 704.3 Systems out of service. Where a required fire protection system is out of service, the fire department and the fire code official shall be notified immediately and, where required by the fire code official, the building shall be either evacuated or an approved fire watch shall be provided for all occupants left unprotected by the shutdown until the fire protection system has been returned to service. Where utilized, fire watches shall be provided with not less than one approved means for notification of the fire department and their only duty shall be to perform constant patrols of the protected premises and keep watch for fires.

[F] 704.3.1 Impairment coordinator. The building owner shall assign an impairment coordinator to comply with the requirements of this section. In the absence of a specific designee, the owner shall be considered the impairment coordinator.

[F] 704.3.2 Tag required. A tag shall be used to indicate that a system, or portion thereof, has been removed from service.

[F] 704.3.3 Placement of tag. The tag shall be posted at each fire department connection, system control valve, fire alarm control unit, fire alarm annunciator and fire command center, indicating which system, or part thereof, has been removed from service. The code official shall specify where the tag is to be placed.

[F] 704.3.4 Preplanned impairment programs. Preplanned impairments shall be authorized by the impairment coordinator. Before authorization is given, a designated individual shall be responsible for verifying that all of the following procedures have been implemented:

1. The extent and expected duration of the impairment have been determined.
2. The areas or buildings involved have been inspected and the increased risks determined.

3. Recommendations have been submitted to management or the building owner/manager.
4. The fire department has been notified.
5. The insurance carrier, the alarm company, the building owner/manager and other authorities having jurisdiction have been notified.
6. The supervisors in the areas to be affected have been notified.
7. A tag impairment system has been implemented.
8. Necessary tools and materials have been assembled on the impairment site.

[F] 704.3.5 Emergency impairments. Where unplanned impairments occur, appropriate emergency action shall be taken to minimize potential injury and damage. The impairment coordinator shall implement the steps outlined in Section 704.3.4

[F] 704.4 Restoring systems to service. When impaired equipment is restored to normal working order, the impairment coordinator shall verify that all of the following procedures have been implemented:

1. Necessary inspections and tests have been conducted to verify that affected systems are operational.
2. Supervisors have been advised that protection is restored.
3. The fire department has been advised that protection is restored.
4. The building owner/manager, insurance carrier, alarm company and other involved parties have been advised that protection is restored.
5. The impairment tag has been removed.

[F] 704.5 Removal of or tampering with equipment. It shall be unlawful for any person to remove, tamper with or otherwise disturb any fire hydrant, fire detection and alarm system, fire suppression system or other fire appliance required by this code except for the purpose of extinguishing fire, training purposes, recharging or making necessary repairs or where approved by the code official.

[F] 704.5.1 Removal of or tampering with appurtenances. Locks, gates, doors, barricades, chains, enclosures, signs, tags or seals that have been installed by or at the direction of the code official shall not be removed, unlocked, destroyed, tampered with or otherwise vandalized in any manner.

[F] 704.5.2 Termination of monitoring service. For fire alarm systems required to be monitored by the International Fire Code, notice shall be made to the code official whenever alarm monitoring services are terminated. Notice shall be made in writing, to the code official by the monitoring service provider being terminated.

Revise as follows:

[F] ~~704.1.2~~ 704.6 ~~Fire~~ Access to fire department ~~connection~~ connections. ~~Where~~ Immediate access to fire department connections shall be maintained at all times and without obstruction by fences, bushes, trees, walls or any other fixed or moveable object. Access to fire department connections shall be approved by the fire ~~department connection is not visible to approaching fire apparatus~~ chief.
Exception: Fences, where provided with an access gate equipped with a sign complying with the legend requirements of Section 912.5 of the *International Fire Code* and a means of emergency operation. The gate and the means of emergency operation shall be approved by the fire ~~department connection shall be indicated by an *approved* sign mounted on the street front or on the side of the building. Such sign shall have the letters "FDC" not less than 6 inches (152 mm) high~~ chief and ~~words in letters not less than 2 inches (51 mm) high or an arrow to indicate the location~~ maintained operational at all times. ~~Such signs shall be subject to the approval of the fire code official.~~

Add new text as follows:

[F] 704.6.1 Clear space around connections. A working space of not less than 36 inches (914 mm) in width, 36 inches (914 mm) in depth and 78 inches (1981 mm) in height shall be provided and maintained in front of and to the sides of wall-mounted fire department connections and around the circumference of free-standing fire department connections, except as otherwise required or approved by the fire chief.

Revise as follows:

TABLE Table 704.2
Fire Protection Systems Maintenance Standards

SYSTEM	STANDARD
Portable fire extinguishers	NFPA 10
Carbon dioxide fire-extinguishing systems	NFPA 12
Halon 1301 fire-extinguishing systems	NFPA 12A
Dry-chemical extinguishing systems	NFPA 17

Wet-chemical extinguishing systems	NFPA 17A
Water-based fire protection systems	NFPA 25
Fire alarm systems	NFPA 72
Smoke and heat vents	NFPA 204
Water-mist systems	NFPA 750
Clean-agent extinguishing systems	NFPA 2001

Reference standards type: This is an update to reference standard(s) already in the ICC Code Books
Add new standard(s) as follows:
NFPA 10—13 Standard for Portable Fire Extinguishers
NFPA 12—11 Standard on Carbon Dioxide Extinguishing Systems
NFPA 12A—09 Standard on Halon 1301 Fire Extinguishing Systems
NFPA 17—13 Standard for Dry Chemical Extinguishing Systems
NFPA 17A—13 Standard for Wet Chemical Extinguishing Systems
NFPA 72—13 National Fire Alarm and Signaling Code
NFPA 204—15 Standard for Smoke and Heat Venting
NFPA 750—14 Standard on Water Mist Fire Protection Systems
NFPA 2001—15 Standard on Clean Agent Fire Extinguishing Systems

These standards can be viewed here: http://www.nfpa.org/codes-and-standards/document-information-pages

Reason: This proposal replaces Section 704 requirements with applicable extracts for the maintenance of fire protection systems from the International Fire Code. Correlation revisions to the IFC requirements are shown. Specifics are as follows:

1. Text in Section 704.1 has been replaced with text from IFC Section 901.6.
2. Section 704.1.1 is revised to include all fire protection systems and the reference to NFPA 25 is relocated to the new Table 704.2.
3. New IPMC Section 704.1.1 is from IFC Section 901.4.
4. New IPMC Section 704.1.2 is from IFC Section 901.4.1
5. Several sections from IFC Section 901 are added either in whole, or in part.
6. Section 704.6 covers fire department connections, and includes two additional maintenance sections from Section 912 of the IFC.

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction. This proposal does not add any new requirements. It merely correlates the current requirements in the IFC with the IPMC.

PM2-16 : [F] 704-O'Brian11002

PM3-16 (Heard by IFC Committee)

IPMC: 704.2 (New), [F] 704.1, [F] 704.1 (New), [F] 704.1.1, [F] 704.1.1 (New), [F] 704.1.2, [F] 704.1.2 (New), [F] 704.2 (New), [F] 704.2.1 (New), [F] 704.2.2 (New), [F] 704.3 (New), [F] 704.3.1 (New), [F] 704.4 (New), [F] 704.4.1 (New), [F] 704.4.2 (New), [F] 704.4.3 (New), [F] 704.5.1 (New), [F] 704.5.2 (New).

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org)

2015 International Property Maintenance Code

Delete without substitution:

~~**[F] 704.1 General.** Systems, devices and equipment to detect a fire, actuate an alarm, or suppress or control a fire or any combination thereof shall be maintained in an operable condition at all times in accordance with the *International Fire Code*.~~

Add new text as follows:

[F] 704.1 Inspection, testing and maintenance. Fire detection, alarm, and extinguishing systems, mechanical smoke exhaust systems, and smoke and heat vents shall be maintained in accordance with the International Fire Code in an operative condition at all times, and shall be replaced or repaired where defective.

Delete without substitution:

~~**[F] 704.1.1 Automatic sprinkler systems.** Inspection, testing and maintenance of automatic sprinkler systems shall be in accordance with NFPA 25.~~

Add new text as follows:

[F] 704.1.1 Installation. Fire protection systems shall be maintained in accordance with the original installation standards for that system. Required systems shall be extended, altered or augmented as necessary to maintain and continue protection where the building is altered or enlarged. Alterations to fire protection systems shall be done in accordance with applicable standards.

[F] 704.1.2 Required fire protection systems. Fire protection systems required by this code, the International Fire Code or the International Building Code shall be installed, repaired, operated, tested and maintained in accordance with this code. A fire protection system for which a design option, exception or reduction to the provisions of this code the International Fire Code or the International Building Code has been granted shall be considered to be a required system.

[F] 704.2 Standards. Fire protection systems shall be inspected, tested and maintained in accordance with the referenced standards listed in Table 704.2 and as required in this section.

TABLE 704.2
FIRE PROTECTION SYSTEM MAINTENANCE STANDARDS

SYSTEM	**STANDARD**
Portable fire extinguishers	NFPA 10
Carbon dioxide fire-extinguishing system	NFPA 12
Halon 1301 fire-extinguishing systems	NFPA 12A
Dry-chemical extinguishing systems	NFPA 17
Wet-chemical extinguishing systems	NFPA 17A
Water-based fire protection systems	NFPA 25
Fire alarm systems	NFPA 72
Smoke and heat vents	NFPA 204
Water-mist systems	NFPA 750

Clean-agent extinguishing systems	NFPA 2001

[F] 704.2.1 Records. Records of all system inspections, tests and maintenance required by the referenced standards shall be maintained.

[F] 704.2.2 Records information. Initial records shall include the name of the installation contractor, type of components installed, manufacturer of the components, location and number of components installed per floor. Records shall also include the manufacturers' operation and maintenance instruction manuals. Such records shall be maintained for the life of the installation.

[F] 704.3 Systems out of service. Where a required fire protection system is out of service, the fire department and the fire code official shall be notified immediately and, where required by the fire code official, the building shall be either evacuated or an approved fire watch shall be provided for all occupants left unprotected by the shutdown until the fire protection system has been returned to service. Where utilized, fire watches shall be provided with not less than one approved means for notification of the fire department and with the sole duty to perform constant patrols of the protected premises and keep watch for fires. Actions shall be taken in accordance with Section 901 of the International Fire Code to bring the systems back in service.

[F] 704.3.1 Emergency impairments. Where unplanned impairments of fire protection systems occur, appropriate emergency action shall be taken to minimize potential injury and damage. The impairment coordinator shall implement the steps outlined in Section 704.3.4.

[F] 704.4 Removal of or tampering with equipment. It shall be unlawful for any person to remove, tamper with or otherwise disturb any fire hydrant, fire detection and alarm system, fire suppression system or other fire appliance required by this code except for the purpose of extinguishing fire, training purposes, recharging or making necessary repairs.

[F] 704.4.1 Removal of or tampering with appurtenances. Locks, gates, doors, barricades, chains, enclosures, signs, tags and seals that have been installed by or at the direction of the fire code official shall not be removed, unlocked, destroyed, or tampered with in any manner.

[F] 704.4.2 Removal of existing occupant-use hose lines. The fire code official is authorized to permit the removal of existing occupant-use hose lines where all of the following apply:

1. The installation is not required by the International Fire Code or the International Building Code.
2. The hose line would not be utilized by trained personnel or the fire department.
3. The remaining outlets are compatible with local fire department fittings.

[F] 704.4.3 Termination of monitoring service. For fire alarm systems required to be monitored by the International Fire Code, notice shall be made to the fire code official whenever alarm monitoring services are terminated. Notice shall be made in writing, to the fire code official by the monitoring service provider being terminated.

Revise as follows:

[F] ~~704.1.2~~ 704.5 Fire department connection. *No change to text.*

Add new text as follows:

[F] 704.5.1 Fire department connection access Ready access to fire department connections shall be maintained at all times and without obstruction by fences, bushes, trees, walls or any other fixed or moveable object. Access to fire department connections shall be approved by the fire chief.

Exception: Fences, where provided with an access gate equipped with a sign complying with the legend requirements of Section 912.5 and a means of emergency operation. The gate and the means of emergency operation shall be approved by the fire chief and maintained operational at all times.

[F] 704.5.2 Clear space around connections. A working space of not less than 36 inches (914 mm) in width, 36 inches (914 mm) in depth and 78 inches (1981 mm) in height shall be provided and maintained in front of and to the sides of wall-mounted fire department connections and around the circumference of free-standing fire department connections.

Reference standards type: This is an update to reference standard(s) already in the ICC Code Books
Add new standard(s) as follows:

NFPA National Fire Protection Association

1 Batterymarch Park
Quincy, MA 02169-7471

Standard Referenced

10—13 Standard for Portable Fire Extinguishers

12—11 Standard on Carbon Dioxide Extinguishing Systems

12A—09 Standard on Halon 1301 Fire Extinguishing Systems

17—13 Standard for Dry Chemical Extinguishing Systems

17A—13 Standard for Wet Chemical Extinguishing Systems

72—13 National Fire Alarm and Signaling Code

204—15 Standard for Smoke and Heat Venting

750—14 Standard on Water Mist Fire Protection Systems

2001—15 Standard on Clean Agent Fire Extinguishing Systems

Reason: This proposal replaces Section 704 requirements with applicable extracts for the maintenance of fire protection systems from the International Fire Code. Correlation revisions to the IFC requirements are shown. Specifics are as follows:
1. Text is Section 704.1 has been replaced with text from IFC Section 901.6.
2. Section 704.1.1 is no longer needed due to new Section 704.2.
3. Several sections from IFC Section 901 are added either in whole, or in part as indicated.
4. Section 704.5 covers fire department connections, and includes maintenance requirements from Section 912 of the IFC.

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2014 and 2015 the BCAC has held 5 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: **BCAC.** The ICC Fire Code Action Committee (FCAC) also supports this proposal.

Cost Impact: Will not increase the cost of construction
This code change proposal will require ongoing inspection, testing and maintenance requirements that are included in the International Fire Code referenced standards.

PM3-16 : [F] 704.1-KULIK5465

PM4-16 (Heard by IFC Committee)

IPMC: [F] 704.1.1 (New).

Proponent : Edward Kulik (bcac@iccsafe.org)

2015 International Property Maintenance Code

Add new text as follows:

[F] 704.1.1 Fire protection systems. Fire protection systems shall also be inspected, maintained and tested in accordance with the following International Fire Code requirements.

1. Automatic sprinkler systems - Section 903.5
2. Automatic fire extinguishing systems protecting commercial cooking systems – Section 904.12.6.
3. Automatic water mist extinguishing systems – Section 904.11.
4. Carbon dioxide extinguishing systems - Section 904.8.
5. Carbon monoxide alarms and carbon monoxide detection systems – Section 915.6.
6. Clean-agent extinguishing systems – Section 904.10.
7. Dry-chemical extinguishing systems – Section 904.6.
8. Fire alarm and fire detection systems – Section 907.8.
9. Fire department connections – Sections 912.4 and 912.7.
10. Fire pumps – Section 913.5.
11. Foam extinguishing systems – Section 904.7.
12. Halon extinguishing systems – Section 904.9.
13. Single and multiple-station smoke alarms – Section 907.11.
14. Smoke and heat vents and mechanical smoke removal systems – Section 910.5.
15. Smoke control systems - Section 909.20.
16. Wet-chemical extinguishing systems – Section 904.5.

Reason: Section 704.2.1 is new language that directs code users to specific IFC inspection, testing and maintenance requirements.
Note – If the proposal that imports IFC Section 901 requirements into this section is approved, this should be renumbered as Section 704.2.1.

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2014 and 2015 the BCAC has held 5 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: **BCAC.** The ICC Fire Code Action Committee (FCAC) also supports this proposal.

Cost Impact: Will not increase the cost of construction
This proposal does not add any new requirements. It merely correlates existing requirements between the IFC and the IPMC.

PM4-16 : [F] 704.1.1 (New)-KULIK5486

PM5-16 (Heard by IFC Committee)

IPMC: [F] 704.2 (New).

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org)

2015 International Property Maintenance Code

Add new text as follows:

[F] 704.2 Single- and multiple-station smoke alarms. Single- and multiple-station smoke alarms shall be tested and maintained in accordance with the manufacturer's instructions. Smoke alarms that no longer function shall be replaced. Smoke alarms installed in one- and two-family dwellings shall be replaced not more than 10 years from the date of manufacture marked on the unit, or shall be replaced if the date of manufacture cannot be determined.

Reason: The IPMC contains requirements for installation of smoke alarms in Group I-1 and R occupancies, but does not contain specific requirements for testing, maintenance and replacement of smoke alarms.
The IFC references NFPA 72 for maintenance and testing of smoke alarms. NFPA Section 14.4.7.1 contains specific requirements for testing and maintenance of smoke alarms, including replacement after 10 years of service. The manufacturer's installation instructions also specify that alarms be replaced after 10 years of service.

This proposal will correlate the requirements with the manufacturer's instructions, referenced standards and the IPMC.

Note – If the proposal that imports IFC Section 901 requirements into this section is approved, this should be renumbered as Section 704.7.

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2014 and 2015 the BCAC has held 5 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: **BCAC.** The ICC Fire Code Action Committee (FCAC) also supports this proposal.

Cost Impact: Will increase the cost of construction
This code change proposal will not increase the cost of construction. It has the potential to increase maintenance expenses.

PM6-16 (Heard by IFC Committee)

IPMC: [F] 704.3 (New).

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org)

2015 International Property Maintenance Code

Add new text as follows:

[F] 704.3 Carbon monoxide alarms and detectors Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with NFPA 720. Carbon monoxide alarms and carbon monoxide detectors that become inoperable or begin producing end-of-life signals shall be replaced.

Reference standards type: This is an update to reference standard(s) already in the ICC Code Books
Add new standard(s) as follows:
NFPA 720 is already a referenced standard in the IFC but is new to the IPMC.
It can be viewed here:

http://www.nfpa.org/codes-and-standards/document-information-pages?mode=code&code=720

Reason: Currently, there are no requirements in the IPMC for maintenance of carbon monoxide alarms or carbon monoxide detection systems. This proposal correlates the requirements for maintenance of carbon monoxide alarms and detection systems in IFC Section 915.6 with the IPMC
Note – If the proposal that imports IFC Section 901 requirements into this section is approved, this should be renumbered as Section 704.7.

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2014 and 2015 the BCAC has held 5 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: **BCAC.** The ICC Fire Code Action Committee (FCAC) also supports this proposal.

Cost Impact: Will not increase the cost of construction
This proposal does not add any new requirements. It merely correlates the requirements in the IFC and IPMC.

PM6-16 : [F] 704.3 (New)-KULIK5497

PM7-16 (Heard by IFC Committee)

IPMC: 705 (New), [F] 705.1 (New), [F] 705.2 (New).

Proponent : Jonathan Wilson, National Center for Healthy Housing, representing National Center for Healthy Housing (jwilson@nchh.org)

2015 International Property Maintenance Code

Add new text as follows:

SECTION 705 CARBON MONOXIDE ALARMS

[F] 705.1 General. Carbon monoxide alarms shall be installed in dwellings in accordance with Section 1103.9 of the *International Fire Code*, except that alarms in dwellings covered by the *International Residential Code* shall be installed in accordance with Section R315 of that code.

[F] 705.2 Deadline for compliance. Where a carbon monoxide alarm is not already installed or required elsewhere, section 705.1 does not apply until January 1, 2019.

Reason: International Fire Code Section 1103.9
International Residential Code Section R315

In 2011, 49 million homes had carbon monoxide alarms.[1] Almost 4.5 million more homes had an alarm in 2011, compared to 2009.[2] These alarms protect residents and their guests from carbon monoxide poisoning, which kills more than 300 people annually and hurts thousands more.[3] The carbon monoxide typically results from incomplete combustion of a fuel, usually when a vehicle, furnace, water heater, or fireplace is either functioning poorly or is warming up and has not yet reached optimum performance.[4] The risk is greatest where there are older appliances or where the garage is not properly isolated from the occupied area.

When carbon monoxide exposes residents to dangerous levels of this odorless, tasteless, invisible gas, the alarm warns them to get to safety before their brains are so starved of oxygen that they become sleepy or disoriented and unable to escape.[3] The alarm complements the many educational and code-related efforts to reduce carbon monoxide generation and exposure and serves to prevent death and serious harm much as a smoke alarm does.

According to health and safety experts at the Centers for Disease Control and Prevention (CDC),[3] the U.S. Consumer Product Safety Commission (CDC)[5] and the National Fire Protection Association (NFPA),[6] all dwellings with either an attached garage or a fuel-burning appliance should have a functioning carbon monoxide alarm. Recognizing the gaps in the existing codes, elected officials in the many states have adopted laws requiring the alarms, often in response to a tragedy.[7] The National Electric Manufacturers Association (NEMA)[8] also agrees. A decade ago, a five-year Underwriters Laboratory study confirmed the reliability of the alarms and concluded the alarms are not susceptible to nuisance activations.[9]

The ICC's International Fire Code (IFC) section 1103.9 and International Residential Code (IRC) section R315.3 now require carbon monoxide alarms in almost all dwellings with an attached garage or fuel-burning appliance. The IRC requirement is triggered by new construction or work requiring any permit without regard to whether the work affected a fuel-burning appliance. The IFC requirement applies to Group I and R occupancies (with a limited exception) and, therefore, not to homes covered by the IRC. Because the IFC alarm requirement is in a maintenance provision in Chapter 11, it applies to existing conditions and operations pursuant to section 102.2 and not only construction. While the maintenance provisions of section 1103 may result in the need for a permit pursuant to section 1103.1 to correct deficiencies, they are not triggered solely by a permit.

This proposal adds new section 705.1 to the IPMC to require homes to have a carbon monoxide alarm consistent with the applicable IFC section 1103.9 or IRC section R315.3. The proposal also adds a new section 705.2 to delay the application of the carbon monoxide alarm requirement under section 705.1 until January 1, 2019 so that property owners have three years to comply. Where states have required carbon monoxide alarms in homes, they commonly only provide 18 not 36 months to comply so three years from the date that the revised IPMC is final should be more than adequate.

In Group I and R occupancies where the IFC applies, the proposal will improve compliance by providing property owners with another reminder to install an alarm. If a jurisdiction has elected to limit the IFC requirement so it is triggered only by a construction permit, then it would most likely elect to do the same here. There are very few communities that have adopted the IFC but not the IPMC.[10]

For homes covered by the IRC, this proposal will address a serious problem with the IRC approach. By making the alarm requirement contingent on the need for a permit, it does not protect the residents of homes at greatest risk of carbon monoxide poisoning because they are not making improvements and likely have the oldest fuel-burning appliances. As a result, the residents who would benefit most from an alarm are the least likely to be required to have one. This proposal corrects that problem.

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[2] American Housing Survey for the United States: 2009, U.S. Census Bureau, 2011, p. 18, http://www.census.gov/programs-surveys/ahs/data/2009/h150-09.html.

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Cost Impact: Will increase the cost of construction

COSTS:

Carbon monoxide (CO) alarms listed as complying with ANSI/UL standards typically costs approximately $25 and are usually relatively simple to install. We estimate the total installed cost to be $42 per dwelling.

According to the 2011 American Housing Survey (AHS),[1] an estimated 49 of 115 million occupied homes (42% of all homes) had working carbon monoxide alarms/detectors. About half of these detectors were powered only by batteries. Overall, 46% of owner-occupied homes and 33% of renters had detectors. The rates varied by region of the country with the Northeast at 65%, the Midwest at 54%, the West at 30%, and the South at 27%. The AHS does not track garages that are attached separately from those that are not attached.

Since IFC's requirements already apply to Group I and R occupancies, we analyzed the AHS data for 2011 for one- and two-family homes with fuel-burning appliances. For these homes, we found 43% had working carbon monoxide alarms, a rate similar to that for all homes. Because the IFC, IRC, and many state laws already require CO alarms in many existing dwellings, it appears that many homes already required to have an alarm under the code still do not have one. For those dwellings, the proposal will primarily improve compliance rates rather than increase the cost of construction.

Our cost analysis focused on those dwellings not already required to have an alarm. To conduct that analysis, we evaluated each state as follows:

- **Statewide IFC:** The IFC has been adopted statewide in 29 states and locally in 11 more.[10] Unless the state or locality opted not to adopt Section 1103.9 of the IFC, or if a limited exception applies, a CO alarm is required in all dwelling units in Group I or R occupancies containing a fuel-burning appliance or that have an attached garage (other than an open parking garage or ventilated enclosed parking garage). The units must be equipped with a single station CO alarm listed as complying with UL 2034 installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. In these jurisdictions, the proposal will improve compliance with IFC in Group I and R occupancies.
    - Twenty-five of these 29 states also have a statewide IRC.[10] Therefore, the proposal will only increase construction cost in homes covered by the IRC that have not had a permit since the 2012 edition of the IRC goes into effect in the jurisdiction. These are also the homes most in need of a CO alarm.
    - Four of the 29 states only have a local IRC.[10] Alaska already requires alarms in all homes; Arizona and Tennessee have adopted the 2009 edition of the IRC statewide.[7] In South Dakota, all local jurisdictions listed by ICC have adopted the IRC. In these three states, the proposal will only increase construction cost in homes covered by the IRC that will not have had a permit when the 2012 edition of the IRC is effective in the jurisdiction.
- **Statewide IRC:** Sixteen states have a statewide IRC but not a statewide IFC.[10]
    - Eight of the 16 states lack a local IFC. Two states, Massachusetts and Rhode Island, already require alarms in all homes.[7] West Virginia requires alarms in most occupancies covered by the IFC and in rentals covered by the IRC. Maryland requires alarms in Group R occupancies. Michigan gave the state commission authority to require alarms and all local\lities adopting the ICC have already adopted the IFC. Florida, Hawaii, and Maine do not have localities that have adopted the IPMC so they won't be affected. Therefore, in two of the eight states, the proposal will only increase construction cost in homes covered by the IRC that will have not had a permit when the 2012 edition of the IRC is effective in the jurisdiction.
    - Eight of the 16 states have a local IFC. In Missouri, Montana, Nebraska, Nevada, North Dakota, and Texas, all or most localities adopting ICC codes have adopted the IFC. Montana requires alarms in rentals.[7] New Hampshire requires alarms at substantial rehabilitations. In Louisiana, four localities have adopted the IPMC and not the IFC. Therefore, these states and the few localities that have adopted the IPMC but not the IFC will be impacted in Group I and R occupancies. In all eight, the proposal will increase construction cost in homes covered by the IRC that will not have had a permit when the 2012 edition of the IRC is effective in the jurisdiction.
- **No Statewide IRC and IFC:** Only five states have adopted neither the IRC nor IFC statewide:
    - Colorado: State law already requires CO alarms in all homes.[7] Therefore, the proposal will only improve compliance and not increase construction costs.
    - Delaware: Of the ten localities that have adopted any of the ICC codes, four have adopted the IFC, all have adopted the IRC, and six have adopted the IPMC.[10] In the six localities adopting the IPMC, four have adopted the IFC. Therefore, the proposal will primarily improve compliance and increase construction costs in two counties in Group I and R occupancies, and in all

ten, in homes that will not have had a permit when the 2012 edition of the IRC is effective in the jurisdiction.

- Illinois: The state already requires CO alarms in all homes.[7] Therefore, the proposal will only improve compliance and not increase construction costs.
- Vermont: No localities have adopted any of the ICC codes, so it would be unaffected by the proposal.[10] In addition, the state already requires a CO alarm for all but one-family dwellings; in those homes, the alarm must be installed when the home is sold.[7] Therefore, the proposal will not increase construction costs.
- Wisconsin: Of the two localities that have adopted any of the ICC codes, both have adopted the IFC.[10] In addition, Wisconsin state law requires a CO alarm for all but one- and two-family homes.[7] Therefore, the proposal will only improve compliance and not affect construction cost.

In summary, in Group I and R occupancies in the minority of states and localities without the IFC or an existing state law mandating compliance, the proposal will increase costs by $42 per unit. For homes covered by the IRC, the proposal will accelerate the requirement to install CO alarms. In the few localities that have the IPMC but not the IRC, the proposal will increase costs by $42 per home.

BENEFITS:

The benefits of a CO alarm in fewer deaths, emergency room visits, hospitalizations, treatment, and rehabilitation far outweigh the $42 per dwelling cost. The U.S. Consumer Product Safety Commission (CPSC) estimated the societal costs of unintentional non-fire CO poisoning deaths associated with consumer products at $705 million annually from 1999 to 2002.[11]

A 2012 study[12] estimated that the hospitalization cost for confirmed carbon monoxide poisonings was more than $26 million in 2007, based on 21,304 emergency room visits and 2,302 hospitalizations. This estimate only includes the cost of confirmed hospitalizations and not (1) the rehabilitation and long-term treatment costs, and (2) the thousands of cases where the poisoning occurred but was not confirmed, usually because the person was unaware of the exposure. In 2007, for every confirmed case there were an estimated five probable or suspected cases.[13] More recent numbers are not available, though they should have decreased due to the actions by state and local legislatures, as well as implementation of the IRC and IFC after 2012.

Beyond victim hospitalization and treatment costs, carbon monoxide costs communities whose emergency responders respond to non-fire-related incidents. In 2012, the National Fire Protection Association estimated that municipal fire departments responded to an annual average of 72,000 of these incidents between 2006 and 2010, with 94% of the incidents occurring in residential properties and 73% in one- or two-family homes.[14] The alarms are likely to increase the number of responses, but, based on the UL-study, few will be the result of nuisance alarms.[9]

PM7-16 : [F] 705 (New)-WILSON5119

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2016 GROUP B – PROPOSED CHANGES TO THE INTERNATIONAL FIRE CODE

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TENTATIVE ORDER OF DISCUSSION
2016 PROPOSED CHANGES TO THE INTERNATIONAL FIRE CODE

The following is the tentative order in which the proposed changes to the code will be discussed at the public hearings. Proposed changes which impact the same subject have been grouped to permit consideration in consecutive changes.

Proposed change numbers that are indented are those which are being heard out of numerical order. Indentation does not necessarily indicate that one change is related to another. Proposed changes may be grouped for purposes of discussion at the hearing at the discretion of the chair. Note that some F code change proposals may not be included on this list, as they are being heard by another committee.

NUMBER NOT USED
F129-16

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PM1-16 (Heard by IFC Committee)

IPMC: 703, [F] 703.1, [F] 703.2, [F] 703.3 (New), [F] 703.3.1 (New), [F] 703.3.2 (New), [F] 703.3.3 (New), [F] 703.4 (New), [F] 703.4.1 (New), [F] 703.4.2 (New), [F] 703.4.3 (New), [F] 703.5 (New), [F] 703.6 (New), [F] 703.7 (New), [F] 703.8 (New).

Proponent : Edward Kulik, ICC Building Code Action Committee, representing ICC Building Code Action Committee (bcac@iccsafe.org)

2015 International Property Maintenance Code

SECTION 703 FIRE-RESISTANCE RATINGS

Delete and substitute as follows:

[F] 703.1 Fire-resistance-rated assemblies. ~~The required fire-resistance rating of fire-resistance-rated walls, fire stops, shaft enclosures, partitions and floors shall be maintained.~~
The provisions of this chapter shall govern maintenance of the materials, systems and assemblies used for structural fire resistance and fire-resistance-rated construction separation of adjacent spaces to safeguard against the spread of fire and smoke within a building and the spread of fire to or from buildings.

[F] 703.2 ~~Opening protectives~~ Unsafe conditions. ~~Required opening protectives shall be maintained in an operative condition. Fire and smokestop doors shall be maintained in operable condition. Fire doors and smoke barrier doors shall not be blocked or obstructed or otherwise made inoperable.~~
Where any components are not maintained and do not function as intended or do not have the fire-resistance required by the code under which the building was constructed or altered, such component(s) or portion thereof shall be deemed an unsafe condition, in accordance with Section 110.1.1 of the International Fire Code. Components or portions thereof determined to be unsafe shall be repaired or replaced to conform to that code under which the building was constructed or altered. Where the extent of the conditions of components is such that any building, structure or portion thereof presents an imminent danger to the occupants of the building, structure or portion thereof, the fire code official shall act in accordance with Section 110.2 of the International Fire Code.

Add new text as follows:

[F] 703.3 Maintenance. The required fire-resistance rating of fire-resistance-rated construction, including walls, firestops, shaft enclosures, partitions, smoke barriers, floors, fire-resistive coatings and sprayed fire-resistant materials applied to structural members and fire-resistant joint systems, shall be maintained. Such elements shall be visually inspected by the owner annually and repaired, restored or replaced where damaged, altered, breached or penetrated. Records of inspections and repairs shall be maintained. Where concealed, such elements shall not be required to be visually inspected by the owner unless the concealed space is accessible by the removal or movement of a panel, access door, ceiling tile or entry to the space. Openings made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer and openings made for any reason shall be protected with approved methods capable of resisting the passage of smoke and fire. Openings through fire-resistance-rated assemblies shall be protected by self- or automatic-closing doors of approved construction meeting the fire protection requirements for the assembly.

[F] 703.3.1 Fire blocking and draft stopping Required fire blocking and draft stopping in combustible concealed spaces shall be maintained to provide continuity and integrity of the construction.

[F] 703.3.2 Smoke barriers and smoke partitions Required smoke barriers and smoke partitions shall be maintained to prevent the passage of smoke. Openings protected with approved smoke barrier doors or smoke dampers shall be maintained in accordance with NFPA 105.

[F] 703.3.3 Fire walls, fire barriers, and fire partitions. Required fire walls, fire barriers and fire partitions shall be maintained to prevent the passage of fire. Openings
protected with approved doors or fire dampers shall be maintained in accordance with NFPA 80.

[F] 703.4 Opening protectives. Opening protectives shall be maintained in an operative condition in accordance with NFPA 80. The application of field-applied labels associated with the maintenance of opening protectives shall follow the requirements of the approved third-party certification organization accredited for listing the opening protective. Fire doors and smoke barrier doors shall not be blocked or obstructed, or otherwise made inoperable. Fusible links shall be replaced whenever fused or damaged. Fire door assemblies shall not be modified.

[F] 703.4.1 Signs. Where required by the code official, a sign shall be permanently displayed on or near each fire door in letters not less than 1 inch (25 mm) high to read as follows:

1. For doors designed to be kept normally open: FIRE DOOR—DO NOT BLOCK.
2. For doors designed to be kept normally closed: FIRE DOOR—KEEP CLOSED.

[F] 703.4.2 Hold-open devices and closers. Hold-open devices and automatic door closers shall be maintained. During the period that such device is out of service for repairs, the door it operates shall remain in the closed position.

[F] 703.4.3 Door operation. Swinging fire doors shall close from the full-open position and latch automatically. The door closer shall exert enough force to close and latch the door from any partially open position.

[F] 703.5 Ceilings. The hanging and displaying of salable goods and other decorative materials from acoustical ceiling systems that are part of a fire-resistance-rated horizontal assembly, shall be prohibited.

[F] 703.6 Testing. Horizontal and vertical sliding and rolling fire doors shall be inspected and tested annually to confirm operation and full closure. Records of inspections and testing shall be maintained.

[F] 703.7 Vertical shafts. Interior vertical shafts including stairways, elevator hoistways, service and utility shafts, that connect two or more stories of a building shall be enclosed or protected as required in Chapter 11 of the International Fire Code. New floor openings in existing buildings shall comply with the International Building Code.

[F] 703.8 Opening protective closers. Where openings are required to be protected, opening protectives shall be maintained self-closing or automatic-closing by smoke detection. Existing fusible-link-type automatic door-closing devices shall be replaced if the fusible link rating exceeds 135°F (57°C).

Reason: This proposal replaces the IPMC Section 703 requirements with applicable extracts from the IFC. This proposal simply correlates the requirements in the IPMC and the IFC without changing the requirements from the IFC, other than editorial changes necessary so the format works with the IPMC.
The new sections come from the following locations:

Proposed IPMC Section	Duplicated from IFC Section
703.1 Fire-resistance-rated assemblies	701.1 Scope
703.2 Unsafe conditions	701.2 Unsafe conditions
703.3 Maintenance	703.1 Maintenance
703.3.1 Fire blocking and draft stopping	703.1.1 Fire blocking and draft stopping
703.3.2 Smoke barriers and smoke partitions	703.1.2 Smoke barriers and smoke partitions
703.3.3 Fire walls, fire barriers and fire partitions	703.1.3 Fire walls, fire barriers and fire partitions
703.4 Opening protectives	703.2 Opening protectives
703.4.1 Signs	703.2.1 Signs
703.4.2 Hold-open devices and closers	703.2.2 Hold-open devices and closers
703.4.3 Door operation	703.2.3 Door operation
703.5 Ceilings	703.3 Ceilings
703.6 Testing	703.4 Testing
703.7 Vertical shafts	704.1 Enclosure
703.8 Opening protective closers	704.2 Opening protectives

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2014 and 2015 the BCAC has held 5 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: **BCAC.** The ICC Fire Code Action Committee (FCAC) also supports this proposal.

Cost Impact: Will not increase the cost of construction
This proposal does not add new requirements; it merely correlates code requirements contained in the IFC with the IPMC.

PM1-16 : [F] 703-KULIK5470

PM2-16 (Heard by IFC Committee)

IPMC: 704, Table 704.2 (New), [F] 704.1, [F] 704.1.1, [F] 704.1.2, [F] 704.1.2 (New), [F] 704.2 (New), [F] 704.2.1 (New), [F] 704.2.2 (New), [F] 704.3 (New), [F] 704.3.1 (New), [F] 704.3.2 (New), [F] 704.3.3 (New), [F] 704.3.4 (New), [F] 704.3.5 (New), [F] 704.4 (New), [F] 704.5 (New), [F] 704.5.1 (New), [F] 704.5.2 (New), [F] 704.6.1 (New).

Proponent : Michael O'Brian, representing the IAFC fire life safety section

2015 International Property Maintenance Code

SECTION 704 FIRE PROTECTION SYSTEMS

Revise as follows:

[F] 704.1 General. ~~Systems~~
Fire detection,~~ devices and equipment to detect a fire, actuate an~~ alarm, ~~or suppress or control a fire or any combination thereof~~ and extinguishing systems, mechanical smoke exhaust systems, and smoke and heat vents shall be maintained in an ~~operable~~ operative condition at all times~~ in accordance with the *International Fire Code*~~, and shall be replaced or repaired where defective.

[F] 704.1.1 ~~Automatic sprinkler systems~~ Installation. ~~Inspection, testing and maintenance of automatic sprinkler~~ Fire protection systems shall be maintained in accordance with ~~NFPA 25~~ the original installation standards for that system. Required systems shall be extended, altered or augmented as necessary to maintain and continue protection where the building is altered, remodeled or added to. Alterations to fire protection systems shall be done in accordance with applicable standards.

Add new text as follows:

[F] 704.1.2 Required fire protection systems. Fire protection systems required by the International Fire Code or the International Building Code shall be installed, repaired, operated, tested and maintained in accordance with this code. A fire protection system for which a design option, exception or reduction to the provisions of the International Fire Code or the International Building Code has been granted shall be considered to be a required system.

[F] 704.2 Standards. Fire protection systems shall be inspected, tested and maintained in accordance with the referenced standards listed in Table 704.2 and as required in this section.

[F] 704.2.1 Records. Records of all system inspections, tests and maintenance required by the referenced standards shall be maintained.

[F] 704.2.2 Records information. Initial records shall include the name of the installation contractor, type of components installed, manufacturer of the components, location and number of components installed per floor. Records shall also include the manufacturers' operation and maintenance instruction manuals. Such records shall be maintained for the life of the installation.

[F] 704.3 Systems out of service. Where a required fire protection system is out of service, the fire department and the fire code official shall be notified immediately and, where required by the fire code official, the building shall be either evacuated or an approved fire watch shall be provided for all occupants left unprotected by the shutdown until the fire protection system has been returned to service. Where utilized, fire watches shall be provided with not less than one approved means for notification of the fire department and their only duty shall be to perform constant patrols of the protected premises and keep watch for fires.

[F] 704.3.1 Impairment coordinator. The building owner shall assign an impairment coordinator to comply with the requirements of this section. In the absence of a specific designee, the owner shall be considered the impairment coordinator.

[F] 704.3.2 Tag required. A tag shall be used to indicate that a system, or portion thereof, has been removed from service.

[F] 704.3.3 Placement of tag. The tag shall be posted at each fire department connection, system control valve, fire alarm control unit, fire alarm annunciator and fire command center, indicating which system, or part thereof, has been removed from service. The code official shall specify where the tag is to be placed.

[F] 704.3.4 Preplanned impairment programs. Preplanned impairments shall be authorized by the impairment coordinator. Before authorization is given, a designated individual shall be responsible for verifying that all of the following procedures have been implemented:

1. The extent and expected duration of the impairment have been determined.
2. The areas or buildings involved have been inspected and the increased risks determined.

3. Recommendations have been submitted to management or the building owner/manager.
4. The fire department has been notified.
5. The insurance carrier, the alarm company, the building owner/manager and other authorities having jurisdiction have been notified.
6. The supervisors in the areas to be affected have been notified.
7. A tag impairment system has been implemented.
8. Necessary tools and materials have been assembled on the impairment site.

[F] 704.3.5 Emergency impairments. Where unplanned impairments occur, appropriate emergency action shall be taken to minimize potential injury and damage. The impairment coordinator shall implement the steps outlined in Section 704.3.4

[F] 704.4 Restoring systems to service. When impaired equipment is restored to normal working order, the impairment coordinator shall verify that all of the following procedures have been implemented:

1. Necessary inspections and tests have been conducted to verify that affected systems are operational.
2. Supervisors have been advised that protection is restored.
3. The fire department has been advised that protection is restored.
4. The building owner/manager, insurance carrier, alarm company and other involved parties have been advised that protection is restored.
5. The impairment tag has been removed.

[F] 704.5 Removal of or tampering with equipment. It shall be unlawful for any person to remove, tamper with or otherwise disturb any fire hydrant, fire detection and alarm system, fire suppression system or other fire appliance required by this code except for the purpose of extinguishing fire, training purposes, recharging or making necessary repairs or where approved by the code official.

[F] 704.5.1 Removal of or tampering with appurtenances. Locks, gates, doors, barricades, chains, enclosures, signs, tags or seals that have been installed by or at the direction of the code official shall not be removed, unlocked, destroyed, tampered with or otherwise vandalized in any manner.

[F] 704.5.2 Termination of monitoring service. For fire alarm systems required to be monitored by the International Fire Code, notice shall be made to the code official whenever alarm monitoring services are terminated. Notice shall be made in writing, to the code official by the monitoring service provider being terminated.

Revise as follows:

[F] ~~704.1.2~~ 704.6 ~~Fire~~ Access to fire department ~~connection~~ connections. ~~Where~~ Immediate access to fire department connections shall be maintained at all times and without obstruction by fences, bushes, trees, walls or any other fixed or moveable object. Access to fire department connections shall be approved by the fire ~~department connection is not visible to approaching fire apparatus~~ chief.
Exception: Fences, where provided with an access gate equipped with a sign complying with the legend requirements of Section 912.5 of the *International Fire Code* and a means of emergency operation. The gate and the means of emergency operation shall be approved by the fire ~~department connection shall be indicated by an *approved* sign mounted on the street front or on the side of the building. Such sign shall have the letters "FDC" not less than 6 inches (152 mm) high~~ chief and ~~words in letters not less than 2 inches (51 mm) high or an arrow to indicate the location~~ maintained operational at all times. ~~Such signs shall be subject to the approval of the fire code official.~~

Add new text as follows:

[F] 704.6.1 Clear space around connections. A working space of not less than 36 inches (914 mm) in width, 36 inches (914 mm) in depth and 78 inches (1981 mm) in height shall be provided and maintained in front of and to the sides of wall-mounted fire department connections and around the circumference of free-standing fire department connections, except as otherwise required or approved by the fire chief.

Revise as follows:

TABLE Table 704.2
Fire Protection Systems Maintenance Standards

SYSTEM	STANDARD
Portable fire extinguishers	NFPA 10
Carbon dioxide fire-extinguishing systems	NFPA 12
Halon 1301 fire-extinguishing systems	NFPA 12A
Dry-chemical extinguishing systems	NFPA 17

Wet-chemical extinguishing systems	NFPA 17A
Water-based fire protection systems	NFPA 25
Fire alarm systems	NFPA 72
Smoke and heat vents	NFPA 204
Water-mist systems	NFPA 750
Clean-agent extinguishing systems	NFPA 2001

Reference standards type: This is an update to reference standard(s) already in the ICC Code Books
Add new standard(s) as follows:
NFPA 10—13 Standard for Portable Fire Extinguishers
NFPA 12—11 Standard on Carbon Dioxide Extinguishing Systems
NFPA 12A—09 Standard on Halon 1301 Fire Extinguishing Systems
NFPA 17—13 Standard for Dry Chemical Extinguishing Systems
NFPA 17A—13 Standard for Wet Chemical Extinguishing Systems
NFPA 72—13 National Fire Alarm and Signaling Code
NFPA 204—15 Standard for Smoke and Heat Venting
NFPA 750—14 Standard on Water Mist Fire Protection Systems
NFPA 2001—15 Standard on Clean Agent Fire Extinguishing Systems

These standards can be viewed here: http://www.nfpa.org/codes-and-standards/document-information-pages

Reason: This proposal replaces Section 704 requirements with applicable extracts for the maintenance of fire protection systems from the International Fire Code. Correlation revisions to the IFC requirements are shown. Specifics are as follows:

1. Text in Section 704.1 has been replaced with text from IFC Section 901.6.
2. Section 704.1.1 is revised to include all fire protection systems and the reference to NFPA 25 is relocated to the new Table 704.2.
3. New IPMC Section 704.1.1 is from IFC Section 901.4.
4. New IPMC Section 704.1.2 is from IFC Section 901.4.1
5. Several sections from IFC Section 901 are added either in whole, or in part.
6. Section 704.6 covers fire department connections, and includes two additional maintenance sections from Section 912 of the IFC.

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction. This proposal does not add any new requirements. It merely correlates the current requirements in the IFC with the IPMC.

PM2-16 : [F] 704-O'Brian11002

PM3-16 (Heard by IFC Committee)

IPMC: 704.2 (New), [F] 704.1, [F] 704.1 (New), [F] 704.1.1, [F] 704.1.1 (New), [F] 704.1.2, [F] 704.1.2 (New), [F] 704.2 (New), [F] 704.2.1 (New), [F] 704.2.2 (New), [F] 704.3 (New), [F] 704.3.1 (New), [F] 704.4 (New), [F] 704.4.1 (New), [F] 704.4.2 (New), [F] 704.4.3 (New), [F] 704.5.1 (New), [F] 704.5.2 (New).

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org)

2015 International Property Maintenance Code

Delete without substitution:

~~**[F] 704.1 General.** Systems, devices and equipment to detect a fire, actuate an alarm, or suppress or control a fire or any combination thereof shall be maintained in an operable condition at all times in accordance with the *International Fire Code*.~~

Add new text as follows:

[F] 704.1 Inspection, testing and maintenance. Fire detection, alarm, and extinguishing systems, mechanical smoke exhaust systems, and smoke and heat vents shall be maintained in accordance with the International Fire Code in an operative condition at all times, and shall be replaced or repaired where defective.

Delete without substitution:

~~**[F] 704.1.1 Automatic sprinkler systems.** Inspection, testing and maintenance of automatic sprinkler systems shall be in accordance with NFPA 25.~~

Add new text as follows:

[F] 704.1.1 Installation. Fire protection systems shall be maintained in accordance with the original installation standards for that system. Required systems shall be extended, altered or augmented as necessary to maintain and continue protection where the building is altered or enlarged. Alterations to fire protection systems shall be done in accordance with applicable standards.

[F] 704.1.2 Required fire protection systems. Fire protection systems required by this code, the International Fire Code or the International Building Code shall be installed, repaired, operated, tested and maintained in accordance with this code. A fire protection system for which a design option, exception or reduction to the provisions of this code the International Fire Code or the International Building Code has been granted shall be considered to be a required system.

[F] 704.2 Standards. Fire protection systems shall be inspected, tested and maintained in accordance with the referenced standards listed in Table 704.2 and as required in this section.

TABLE 704.2
FIRE PROTECTION SYSTEM MAINTENANCE STANDARDS

SYSTEM	**STANDARD**
Portable fire extinguishers	NFPA 10
Carbon dioxide fire-extinguishing system	NFPA 12
Halon 1301 fire-extinguishing systems	NFPA 12A
Dry-chemical extinguishing systems	NFPA 17
Wet-chemical extinguishing systems	NFPA 17A
Water-based fire protection systems	NFPA 25
Fire alarm systems	NFPA 72
Smoke and heat vents	NFPA 204
Water-mist systems	NFPA 750

Clean-agent extinguishing systems	NFPA 2001

[F] 704.2.1 Records. Records of all system inspections, tests and maintenance required by the referenced standards shall be maintained.

[F] 704.2.2 Records information. Initial records shall include the name of the installation contractor, type of components installed, manufacturer of the components, location and number of components installed per floor. Records shall also include the manufacturers' operation and maintenance instruction manuals. Such records shall be maintained for the life of the installation.

[F] 704.3 Systems out of service. Where a required fire protection system is out of service, the fire department and the fire code official shall be notified immediately and, where required by the fire code official, the building shall be either evacuated or an approved fire watch shall be provided for all occupants left unprotected by the shutdown until the fire protection system has been returned to service. Where utilized, fire watches shall be provided with not less than one approved means for notification of the fire department and with the sole duty to perform constant patrols of the protected premises and keep watch for fires. Actions shall be taken in accordance with Section 901 of the International Fire Code to bring the systems back in service.

[F] 704.3.1 Emergency impairments. Where unplanned impairments of fire protection systems occur, appropriate emergency action shall be taken to minimize potential injury and damage. The impairment coordinator shall implement the steps outlined in Section 704.3.4.

[F] 704.4 Removal of or tampering with equipment. It shall be unlawful for any person to remove, tamper with or otherwise disturb any fire hydrant, fire detection and alarm system, fire suppression system or other fire appliance required by this code except for the purpose of extinguishing fire, training purposes, recharging or making necessary repairs.

[F] 704.4.1 Removal of or tampering with appurtenances. Locks, gates, doors, barricades, chains, enclosures, signs, tags and seals that have been installed by or at the direction of the fire code official shall not be removed, unlocked, destroyed, or tampered with in any manner.

[F] 704.4.2 Removal of existing occupant-use hose lines. The fire code official is authorized to permit the removal of existing occupant-use hose lines where all of the following apply:

1. The installation is not required by the International Fire Code or the International Building Code.
2. The hose line would not be utilized by trained personnel or the fire department.
3. The remaining outlets are compatible with local fire department fittings.

[F] 704.4.3 Termination of monitoring service. For fire alarm systems required to be monitored by the International Fire Code, notice shall be made to the fire code official whenever alarm monitoring services are terminated. Notice shall be made in writing, to the fire code official by the monitoring service provider being terminated.

Revise as follows:

[F] ~~704.1.2~~ 704.5 Fire department connection. *No change to text.*

Add new text as follows:

[F] 704.5.1 Fire department connection access Ready access to fire department connections shall be maintained at all times and without obstruction by fences, bushes, trees, walls or any other fixed or moveable object. Access to fire department connections shall be approved by the fire chief.

Exception: Fences, where provided with an access gate equipped with a sign complying with the legend requirements of Section 912.5 and a means of emergency operation. The gate and the means of emergency operation shall be approved by the fire chief and maintained operational at all times.

[F] 704.5.2 Clear space around connections. A working space of not less than 36 inches (914 mm) in width, 36 inches (914 mm) in depth and 78 inches (1981 mm) in height shall be provided and maintained in front of and to the sides of wall-mounted fire department connections and around the circumference of free-standing fire department connections.

Reference standards type: This is an update to reference standard(s) already in the ICC Code Books
Add new standard(s) as follows:

NFPA National Fire Protection Association

1 Batterymarch Park
Quincy, MA 02169-7471

Standard Referenced

10—13 Standard for Portable Fire Extinguishers

12—11 Standard on Carbon Dioxide Extinguishing Systems

12A—09 Standard on Halon 1301 Fire Extinguishing Systems

17—13 Standard for Dry Chemical Extinguishing Systems

17A—13 Standard for Wet Chemical Extinguishing Systems

72—13 National Fire Alarm and Signaling Code

204—15 Standard for Smoke and Heat Venting

750—14 Standard on Water Mist Fire Protection Systems

2001—15 Standard on Clean Agent Fire Extinguishing Systems

Reason: This proposal replaces Section 704 requirements with applicable extracts for the maintenance of fire protection systems from the International Fire Code. Correlation revisions to the IFC requirements are shown. Specifics are as follows:
1. Text is Section 704.1 has been replaced with text from IFC Section 901.6.
2. Section 704.1.1 is no longer needed due to new Section 704.2.
3. Several sections from IFC Section 901 are added either in whole, or in part as indicated.
4. Section 704.5 covers fire department connections, and includes maintenance requirements from Section 912 of the IFC.

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2014 and 2015 the BCAC has held 5 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: **BCAC.** The ICC Fire Code Action Committee (FCAC) also supports this proposal.

Cost Impact: Will not increase the cost of construction
This code change proposal will require ongoing inspection, testing and maintenance requirements that are included in the International Fire Code referenced standards.

PM3-16 : [F] 704.1-KULIK5465

PM4-16 (Heard by IFC Committee)

IPMC: [F] 704.1.1 (New).

Proponent : Edward Kulik (bcac@iccsafe.org)

2015 International Property Maintenance Code

Add new text as follows:

[F] 704.1.1 Fire protection systems. Fire protection systems shall also be inspected, maintained and tested in accordance with the following International Fire Code requirements.

1. Automatic sprinkler systems - Section 903.5
2. Automatic fire extinguishing systems protecting commercial cooking systems – Section 904.12.6.
3. Automatic water mist extinguishing systems – Section 904.11.
4. Carbon dioxide extinguishing systems - Section 904.8.
5. Carbon monoxide alarms and carbon monoxide detection systems – Section 915.6.
6. Clean-agent extinguishing systems – Section 904.10.
7. Dry-chemical extinguishing systems – Section 904.6.
8. Fire alarm and fire detection systems – Section 907.8.
9. Fire department connections – Sections 912.4 and 912.7.
10. Fire pumps – Section 913.5.
11. Foam extinguishing systems – Section 904.7.
12. Halon extinguishing systems – Section 904.9.
13. Single and multiple-station smoke alarms – Section 907.11.
14. Smoke and heat vents and mechanical smoke removal systems – Section 910.5.
15. Smoke control systems - Section 909.20.
16. Wet-chemical extinguishing systems – Section 904.5.

Reason: Section 704.2.1 is new language that directs code users to specific IFC inspection, testing and maintenance requirements.
Note – If the proposal that imports IFC Section 901 requirements into this section is approved, this should be renumbered as Section 704.2.1.

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2014 and 2015 the BCAC has held 5 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: **BCAC.** The ICC Fire Code Action Committee (FCAC) also supports this proposal.

Cost Impact: Will not increase the cost of construction
This proposal does not add any new requirements. It merely correlates existing requirements between the IFC and the IPMC.

PM4-16 : [F] 704.1.1 (New)-KULIK5486

PM5-16 (Heard by IFC Committee)

IPMC: [F] 704.2 (New).

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org)

2015 International Property Maintenance Code

Add new text as follows:

[F] 704.2 Single- and multiple-station smoke alarms. Single- and multiple-station smoke alarms shall be tested and maintained in accordance with the manufacturer's instructions. Smoke alarms that no longer function shall be replaced. Smoke alarms installed in one- and two-family dwellings shall be replaced not more than 10 years from the date of manufacture marked on the unit, or shall be replaced if the date of manufacture cannot be determined.

Reason: The IPMC contains requirements for installation of smoke alarms in Group I-1 and R occupancies, but does not contain specific requirements for testing, maintenance and replacement of smoke alarms.
The IFC references NFPA 72 for maintenance and testing of smoke alarms. NFPA Section 14.4.7.1 contains specific requirements for testing and maintenance of smoke alarms, including replacement after 10 years of service. The manufacturer's installation instructions also specify that alarms be replaced after 10 years of service.

This proposal will correlate the requirements with the manufacturer's instructions, referenced standards and the IPMC.

Note – If the proposal that imports IFC Section 901 requirements into this section is approved, this should be renumbered as Section 704.7.

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2014 and 2015 the BCAC has held 5 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: **BCAC.** The ICC Fire Code Action Committee (FCAC) also supports this proposal.

Cost Impact: Will increase the cost of construction
This code change proposal will not increase the cost of construction. It has the potential to increase maintenance expenses.

PM6-16 (Heard by IFC Committee)

IPMC: [F] 704.3 (New).

Proponent : Edward Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org)

2015 International Property Maintenance Code

Add new text as follows:

[F] 704.3 Carbon monoxide alarms and detectors Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with NFPA 720. Carbon monoxide alarms and carbon monoxide detectors that become inoperable or begin producing end-of-life signals shall be replaced.

Reference standards type: This is an update to reference standard(s) already in the ICC Code Books
Add new standard(s) as follows:
NFPA 720 is already a referenced standard in the IFC but is new to the IPMC.
It can be viewed here:

http://www.nfpa.org/codes-and-standards/document-information-pages?mode=code&code=720

Reason: Currently, there are no requirements in the IPMC for maintenance of carbon monoxide alarms or carbon monoxide detection systems. This proposal correlates the requirements for maintenance of carbon monoxide alarms and detection systems in IFC Section 915.6 with the IPMC
Note – If the proposal that imports IFC Section 901 requirements into this section is approved, this should be renumbered as Section 704.7.

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2014 and 2015 the BCAC has held 5 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: **BCAC.** The ICC Fire Code Action Committee (FCAC) also supports this proposal.

Cost Impact: Will not increase the cost of construction
This proposal does not add any new requirements. It merely correlates the requirements in the IFC and IPMC.

PM6-16 : [F] 704.3 (New)-KULIK5497

PM7-16 (Heard by IFC Committee)

IPMC: 705 (New), [F] 705.1 (New), [F] 705.2 (New).

Proponent : Jonathan Wilson, National Center for Healthy Housing, representing National Center for Healthy Housing (jwilson@nchh.org)

2015 International Property Maintenance Code

Add new text as follows:

SECTION 705 CARBON MONOXIDE ALARMS

[F] 705.1 General. Carbon monoxide alarms shall be installed in dwellings in accordance with Section 1103.9 of the *International Fire Code*, except that alarms in dwellings covered by the *International Residential Code* shall be installed in accordance with Section R315 of that code.

[F] 705.2 Deadline for compliance. Where a carbon monoxide alarm is not already installed or required elsewhere, section 705.1 does not apply until January 1, 2019.

Reason: International Fire Code Section 1103.9
International Residential Code Section R315

In 2011, 49 million homes had carbon monoxide alarms.[1] Almost 4.5 million more homes had an alarm in 2011, compared to 2009.[2] These alarms protect residents and their guests from carbon monoxide poisoning, which kills more than 300 people annually and hurts thousands more.[3] The carbon monoxide typically results from incomplete combustion of a fuel, usually when a vehicle, furnace, water heater, or fireplace is either functioning poorly or is warming up and has not yet reached optimum performance.[4] The risk is greatest where there are older appliances or where the garage is not properly isolated from the occupied area.

When carbon monoxide exposes residents to dangerous levels of this odorless, tasteless, invisible gas, the alarm warns them to get to safety before their brains are so starved of oxygen that they become sleepy or disoriented and unable to escape.[3] The alarm complements the many educational and code-related efforts to reduce carbon monoxide generation and exposure and serves to prevent death and serious harm much as a smoke alarm does.

According to health and safety experts at the Centers for Disease Control and Prevention (CDC),[3] the U.S. Consumer Product Safety Commission (CDC)[5] and the National Fire Protection Association (NFPA),[6] all dwellings with either an attached garage or a fuel-burning appliance should have a functioning carbon monoxide alarm. Recognizing the gaps in the existing codes, elected officials in the many states have adopted laws requiring the alarms, often in response to a tragedy.[7] The National Electric Manufacturers Association (NEMA)[8] also agrees. A decade ago, a five-year Underwriters Laboratory study confirmed the reliability of the alarms and concluded the alarms are not susceptible to nuisance activations.[9]

The ICC's International Fire Code (IFC) section 1103.9 and International Residential Code (IRC) section R315.3 now require carbon monoxide alarms in almost all dwellings with an attached garage or fuel-burning appliance. The IRC requirement is triggered by new construction or work requiring any permit without regard to whether the work affected a fuel-burning appliance. The IFC requirement applies to Group I and R occupancies (with a limited exception) and, therefore, not to homes covered by the IRC. Because the IFC alarm requirement is in a maintenance provision in Chapter 11, it applies to existing conditions and operations pursuant to section 102.2 and not only construction. While the maintenance provisions of section 1103 may result in the need for a permit pursuant to section 1103.1 to correct deficiencies, they are not triggered solely by a permit.

This proposal adds new section 705.1 to the IPMC to require homes to have a carbon monoxide alarm consistent with the applicable IFC section 1103.9 or IRC section R315.3. The proposal also adds a new section 705.2 to delay the application of the carbon monoxide alarm requirement under section 705.1 until January 1, 2019 so that property owners have three years to comply. Where states have required carbon monoxide alarms in homes, they commonly only provide 18 not 36 months to comply so three years from the date that the revised IPMC is final should be more than adequate.

In Group I and R occupancies where the IFC applies, the proposal will improve compliance by providing property owners with another reminder to install an alarm. If a jurisdiction has elected to limit the IFC requirement so it is triggered only by a construction permit, then it would most likely elect to do the same here. There are very few communities that have adopted the IFC but not the IPMC.[10]

For homes covered by the IRC, this proposal will address a serious problem with the IRC approach. By making the alarm requirement contingent on the need for a permit, it does not protect the residents of homes at greatest risk of carbon monoxide poisoning because they are not making improvements and likely have the oldest fuel-burning appliances. As a result, the residents who would benefit most from an alarm are the least likely to be required to have one. This proposal corrects that problem.

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[2] American Housing Survey for the United States: 2009, U.S. Census Bureau, 2011, p. 18, http://www.census.gov/programs-surveys/ahs/data/2009/h150-09.html.

[3] Carbon Monoxide Poisoning Frequently Asked Questions webpage, Centers for Disease Control and Prevention, accessed January 8, 2015 at http://www.cdc.gov/co/faqs.htm.

[4] Carbon Monoxide: Background, American Gas Association, accessed January 8, 2015 at https://www.aga.org/carbon-monoxide.

[5] CPSC Recommends Carbon Monoxide Alarm for Every Home, Consumer Products Safety Commission, Release#01-069, 2001, http://www.cpsc.gov/en/Recalls/2001/CPSC-Recommends-Carbon-Monoxide-Alarm-for-Every-Home/.

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[13] Carbon Monoxide-Related Hospitalizations in the U.S.: Evaluation of a Web-Based Query System for Public Health Surveillance, Public Health Rep. 2010 May-Jun; 125(3): 423–432, Iqbal S, Clower JH, Boehmer TK, Yip FY, Garbe P, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2848267/.

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Cost Impact: Will increase the cost of construction

COSTS:

Carbon monoxide (CO) alarms listed as complying with ANSI/UL standards typically costs approximately $25 and are usually relatively simple to install. We estimate the total installed cost to be $42 per dwelling.

According to the 2011 American Housing Survey (AHS),[1] an estimated 49 of 115 million occupied homes (42% of all homes) had working carbon monoxide alarms/detectors. About half of these detectors were powered only by batteries. Overall, 46% of owner-occupied homes and 33% of renters had detectors. The rates varied by region of the country with the Northeast at 65%, the Midwest at 54%, the West at 30%, and the South at 27%. The AHS does not track garages that are attached separately from those that are not attached.

Since IFC's requirements already apply to Group I and R occupancies, we analyzed the AHS data for 2011 for one- and two-family homes with fuel-burning appliances. For these homes, we found 43% had working carbon monoxide alarms, a rate similar to that for all homes. Because the IFC, IRC, and many state laws already require CO alarms in many existing dwellings, it appears that many homes already required to have an alarm under the code still do not have one. For those dwellings, the proposal will primarily improve compliance rates rather than increase the cost of construction.

Our cost analysis focused on those dwellings not already required to have an alarm. To conduct that analysis, we evaluated each state as follows:

- **Statewide IFC:** The IFC has been adopted statewide in 29 states and locally in 11 more.[10] Unless the state or locality opted not to adopt Section 1103.9 of the IFC, or if a limited exception applies, a CO alarm is required in all dwelling units in Group I or R occupancies containing a fuel-burning appliance or that have an attached garage (other than an open parking garage or ventilated enclosed parking garage). The units must be equipped with a single station CO alarm listed as complying with UL 2034 installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. In these jurisdictions, the proposal will improve compliance with IFC in Group I and R occupancies.
    - Twenty-five of these 29 states also have a statewide IRC.[10] Therefore, the proposal will only increase construction cost in homes covered by the IRC that have not had a permit since the 2012 edition of the IRC goes into effect in the jurisdiction. These are also the homes most in need of a CO alarm.
    - Four of the 29 states only have a local IRC.[10] Alaska already requires alarms in all homes; Arizona and Tennessee have adopted the 2009 edition of the IRC statewide.[7] In South Dakota, all local jurisdictions listed by ICC have adopted the IRC. In these three states, the proposal will only increase construction cost in homes covered by the IRC that will not have had a permit when the 2012 edition of the IRC is effective in the jurisdiction.
- **Statewide IRC:** Sixteen states have a statewide IRC but not a statewide IFC.[10]
    - Eight of the 16 states lack a local IFC. Two states, Massachusetts and Rhode Island, already require alarms in all homes.[7] West Virginia requires alarms in most occupancies covered by the IFC and in rentals covered by the IRC. Maryland requires alarms in Group R occupancies. Michigan gave the state commission authority to require alarms and all local\lities adopting the ICC have already adopted the IFC. Florida, Hawaii, and Maine do not have localities that have adopted the IPMC so they won't be affected. Therefore, in two of the eight states, the proposal will only increase construction cost in homes covered by the IRC that will have not had a permit when the 2012 edition of the IRC is effective in the jurisdiction.
    - Eight of the 16 states have a local IFC. In Missouri, Montana, Nebraska, Nevada, North Dakota, and Texas, all or most localities adopting ICC codes have adopted the IFC. Montana requires alarms in rentals.[7] New Hampshire requires alarms at substantial rehabilitations. In Louisiana, four localities have adopted the IPMC and not the IFC. Therefore, these states and the few localities that have adopted the IPMC but not the IFC will be impacted in Group I and R occupancies. In all eight, the proposal will increase construction cost in homes covered by the IRC that will not have had a permit when the 2012 edition of the IRC is effective in the jurisdiction.
- **No Statewide IRC and IFC:** Only five states have adopted neither the IRC nor IFC statewide:
    - Colorado: State law already requires CO alarms in all homes.[7] Therefore, the proposal will only improve compliance and not increase construction costs.
    - Delaware: Of the ten localities that have adopted any of the ICC codes, four have adopted the IFC, all have adopted the IRC, and six have adopted the IPMC.[10] In the six localities adopting the IPMC, four have adopted the IFC. Therefore, the proposal will primarily improve compliance and increase construction costs in two counties in Group I and R occupancies, and in all

ten, in homes that will not have had a permit when the 2012 edition of the IRC is effective in the jurisdiction.

- Illinois: The state already requires CO alarms in all homes.[7] Therefore, the proposal will only improve compliance and not increase construction costs.
- Vermont: No localities have adopted any of the ICC codes, so it would be unaffected by the proposal.[10] In addition, the state already requires a CO alarm for all but one-family dwellings; in those homes, the alarm must be installed when the home is sold.[7] Therefore, the proposal will not increase construction costs.
- Wisconsin: Of the two localities that have adopted any of the ICC codes, both have adopted the IFC.[10] In addition, Wisconsin state law requires a CO alarm for all but one- and two-family homes.[7] Therefore, the proposal will only improve compliance and not affect construction cost.

In summary, in Group I and R occupancies in the minority of states and localities without the IFC or an existing state law mandating compliance, the proposal will increase costs by $42 per unit. For homes covered by the IRC, the proposal will accelerate the requirement to install CO alarms. In the few localities that have the IPMC but not the IRC, the proposal will increase costs by $42 per home.

BENEFITS:

The benefits of a CO alarm in fewer deaths, emergency room visits, hospitalizations, treatment, and rehabilitation far outweigh the $42 per dwelling cost. The U.S. Consumer Product Safety Commission (CPSC) estimated the societal costs of unintentional non-fire CO poisoning deaths associated with consumer products at $705 million annually from 1999 to 2002.[11]

A 2012 study[12] estimated that the hospitalization cost for confirmed carbon monoxide poisonings was more than $26 million in 2007, based on 21,304 emergency room visits and 2,302 hospitalizations. This estimate only includes the cost of confirmed hospitalizations and not (1) the rehabilitation and long-term treatment costs, and (2) the thousands of cases where the poisoning occurred but was not confirmed, usually because the person was unaware of the exposure. In 2007, for every confirmed case there were an estimated five probable or suspected cases.[13] More recent numbers are not available, though they should have decreased due to the actions by state and local legislatures, as well as implementation of the IRC and IFC after 2012.

Beyond victim hospitalization and treatment costs, carbon monoxide costs communities whose emergency responders respond to non-fire-related incidents. In 2012, the National Fire Protection Association estimated that municipal fire departments responded to an annual average of 72,000 of these incidents between 2006 and 2010, with 94% of the incidents occurring in residential properties and 73% in one- or two-family homes.[14] The alarms are likely to increase the number of responses, but, based on the UL-study, few will be the result of nuisance alarms.[9]

PM7-16 : [F] 705 (New)-WILSON5119