

# IBC — Structural



2018 GROUP A PUBLIC COMMENT AGENDA

OCTOBER 24 - 31, 2018  
GREATER RICHMOND CONVENTION CENTER  
RICHMOND, VA

## 2018 Public Comment Agenda

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by

International Code Council, Inc.

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# S6-18

IBC: , 1507.3.10, 1507.3.10.1, 1507.3.10.2, 1507.3.10.3, 1507.3.10.4

## **Proposed Change as Submitted**

**Proponent:** Amanda Hickman, The Hickman Group, representing RIMA International (amanda@thehickmangroup.com)

THIS PROPOSAL WILL BE HEARD BY THE IBC FIRE SAFETY CODE COMMITTEE. SEE THE IBC-FS HEARING AGENDA.

## **2018 International Building Code**

**Delete without substitution**

### **~~SECTION 1509 RADIANT BARRIERS INSTALLED ABOVE DECK~~**

~~**[BF] 1509.1 General.** A radiant barrier installed above a deck shall comply with Sections 1509.2 through 1509.4.~~

~~**[BF] 1509.2 Fire testing.** Radiant barriers shall be permitted for use above decks where the radiant barrier is covered with an approved roof covering and the system consisting of the radiant barrier and the roof covering complies with the requirements of either FM 4450 or UL 1256.~~

~~**[BF] 1509.3 Installation.** The low emittance surface of the radiant barrier shall face the continuous airspace between the radiant barrier and the roof covering.~~

~~**[BF] 1509.4 Material standards.** A radiant barrier installed above a deck shall comply with ASTM C1313/1313M.~~

**Add new text as follows**

**1507.3.10 Radiant barrier.** Where a radiant barrier is installed above a roof deck under clay or concrete tile, it shall comply with Sections 1507.3.10.1 through 1507.3.10.4

**1507.3.10.1 Installation.** Radiant barriers shall only be installed between a batten and a counter batten. A low-emittance surface of the radiant barrier shall face the airspace between the radiant barrier and roof deck.

**1507.3.10.2 Material fire testing.** The radiant barrier material shall have a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723, with test specimen preparation and mounting in accordance with ASTM E2599.

**1507.3.10.3 Assembly fire testing.** The roof assembly, including the radiant barrier, shall comply with the requirements of a Class A, B, or C roof assembly when classified as required by Section 1505.1.

**1507.3.10.4 Material standards.** Radiant barrier materials shall comply with ASTM C1313/C1313M.

**Reason:** This proposal is submitted as a compromise between RIMA International and National Roofing Contractors Association (NRCA). NRCA approached RIMA with an interest to move section 1509 to 1507. The current language in 1509 is adequate; however, in the spirit of consensus, and because radiant barriers are often used in conjunction with concrete or clay tile, the proposed move of the radiant barrier language from 1509 to a new section in section 1507 Clay and Concrete Tile was developed.

The proposed new section 1507.3.10.2 was drafted based on the requirements in Chapter 14 for water resistive barriers: testing the radiant barrier (on its own) to both ASTM E1354 and ASTM E84 test standards. ASTM E2599 test standard is recommended as the test specimen preparation and mounting method since it is specific to radiant barriers (and some other materials); ASTM E2404 is applicable to water resistive barriers.

A fire classification is required for all roof assemblies per Section 1505. Adding the proposed Section 1507.3.10.3 requires assembly testing of the entire roof covering system. Therefore, the addition of the radiant barrier to any roof assembly will result in a fire classification for the roof assembly as required by Section 1505, just like all other roof assemblies.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This will neither increase or decrease construction costs as radiant barriers are not mandatory, the proposal only moves 1509 language to 1507; and the revisions are minor.

**Staff Analysis:** The referenced standards within this proposal are currently referenced in the I-Codes.

## **Public Hearing Results**

**Committee Action:**

**Disapproved**

**Committee Reason:** The committee determined this proposal would not correct the broken text. (Vote 10-3)

**Assembly Action:**

**None**

**S6-18**

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## **Individual Consideration Agenda**

### *Public Comment 1:*

**Proponent:** Amanda Hickman, representing RIMA International (amanda@thehickmangroup.com) requests As Submitted.

**Commenter's Reason:** This proposal should be approved as submitted because it adds clarity as to when and how radiant barriers can be used in roof assemblies. After many discussions with the National Roofing Contractors Association (NRCA) and others, this was the language that was agreed upon. This language gives the appropriate information for the proposal application and installation of this technology.

**Cost Impact:** The net effect of the public comment and code change proposal will not increase or decrease the cost of construction

This will neither increase or decrease construction costs as radiant barriers are not mandatory, the proposal only moves 1509 language to 1507; and the revisions are minor.

**S6-18**

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# S7-18

IBC: 1508.1

## ***Proposed Change as Submitted***

**Proponent:** Bill McHugh, The McHugh Company, representing Chicago Roofing Contractors Association (Bill@mc-hugh.us)

THIS PROPOSAL WILL BE HEARD BY THE IBC FIRE SAFETY CODE COMMITTEE. SEE THE IBC-FS HEARING AGENDA.

### **2018 International Building Code**

**Revise as follows**

**[BF] 1508.1 General.** The use of above-deck thermal insulation shall be permitted provided that such insulation is covered with an approved roof covering and passes the tests of NFPA 276 or UL 1256 when tested as an assembly.

#### **Exceptions:**

1. Foam plastic roof insulation shall conform to the material and installation requirements of Chapter 26 and separated by an assembly having a minimum 30 minute fire-resistance rating.
2. Where a concrete roof deck is used and the above-deck thermal insulation is covered with an approved roof covering.

**Reason:** The purpose of this proposal is to add safety for when foam plastic insulation is allowed to be used on roof assemblies. Foam plastic insulation is a great product but needs additional protection from fire, especially in roofing configurations. It seems in Chapter 26 that there is an exception that allows foam plastic insulation to be direct applied to wood sheathing but not metal decking. Regardless of roof deck type, it is important to protect the building with a 30 minute fire-resistance rated assembly as a thermal barrier.

**Cost Impact:** The code change proposal will increase the cost of construction  
This proposal will increase the cost of construction by about \$1.00 - \$1.25US per square foot of roofing area.

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**S7-18**

## **Public Hearing Results**

**Committee Action:**

**Disapproved**

**Committee Reason:** The committee concluded this clarification should be made in Chapter 6, not as proposed. (Vote 13-0)

**Assembly Action:**

**None**

**S7-18**

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## **Individual Consideration Agenda**

### *Public Comment 1:*

**Proponent:** Bill McHugh, representing National Fireproofing Contractors Association (billmchugh-jr@att.net) requests As Modified by This Public Comment.

**Modify as follows:**

### **2018 International Building Code**

**603.1 Allowable materials.** Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. *Fire-retardant-treated wood* shall be permitted in:
  - 1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.
  - 1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.
  - 1.3. Roof construction, including girders, trusses, framing and decking.
 

**Exception:** In buildings of Type IA construction exceeding two *stories above grade plane*, *fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).
  - 1.4. Balconies, porches, decks and exterior stairways not used as required exits on buildings three *stories* or less above grade plane.
2. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.

**Exceptions:**

1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.
  2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.
3. Foam plastics in accordance with Chapter 26.
    - 3.1. Where foam plastics are included in a roof assembly, the assembly shall have a fire-resistance rating of not less than 30 minutes.
  4. Roof coverings that have an A, B or C classification.
  5. *Interior floor finish* and floor covering materials installed in accordance with Section 804.
  6. Millwork such as doors, door frames, window sashes and frames.
  7. *Interior wall and ceiling finishes* installed in accordance with Section 803.
  8. *Trim* installed in accordance with Section 806.
  9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.
  10. Finish flooring installed in accordance with Section 805.
  11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood*, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
  12. Stages and platforms constructed in accordance with Sections 410.2 and 410.3, respectively.
  13. Combustible *exterior wall coverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14 and Section 705.2.3.1.
  14. Blocking such as for handrails, millwork, cabinets and window and door frames.
  15. Light-transmitting plastics as permitted by Chapter 26.
  16. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.
  17. Exterior plastic veneer installed in accordance with Section 2605.2.
  18. Nailing or furring strips as permitted by Section 803.15.
  19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.3 and 705.2.3.1.
  20. Aggregates, component materials and admixtures as permitted by Section 703.2.2.
  21. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of *fire resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.14 and 1705.15, respectively.
  22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.
  23. Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 715.
  24. Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 718.5.
  25. Materials exposed within plenums complying with Section 602 of the International Mechanical Code.
  26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m<sup>2</sup>), in size, lined on both sides with noncombustible materials and the building is protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

**Commenter's Reason:** The purpose of this public comment is to address the committee comments that the proposal belonged in Chapter 6 of the IBC.

This proposal brings greater safety to buildings that these foam plastics for roof insulation. While great on thermal resistance, these insulations are flammable when exposed to flame during roof construction or sparks, flame or heat during repairs and even heat transmission from under the decking.

**Cost Impact:** The net effect of the public comment and code change proposal will increase the cost of construction



Foam insulation requiring a fire-resistance-rating of 30 minutes could increase the cost of construction from \$1.00 to \$1.25 square foot. If other types of insulation are selected other than foam plastics, then the increase is much, much less.

## *Public Comment 2:*

**Proponent:** Mike Fischer, Kellen Company, representing The Polyisocyanurate Insulation Manufacturers Association (mfischer@kellencompany.com); Jay Crandell, P.E., ARES Consulting (jcrandell@aresconsulting.biz); Richard Justin Koscher (jkoscher@pima.org); John Woestman (jwoestman@kellencompany.com); Marcin Pazera (mpazera@pima.org) requests Disapprove.

**Commenter's Reason:** S7-18 is one of three code proposals (along with FS156-18 and S8-18) that seek to modify the fire testing requirements of the IBC for all foam plastic insulation materials in roof assemblies. All three were recommended for disapproval by the Committee. We request Disapproval by the Public Comment Hearing attendees and the OGCV.

This proposal adds a requirement for foam plastic roof insulation to be separated by an "assembly" having a 30-min fire-resistance rating. IBC Chapter 26 (Section 2603.4) generally requires the use of a thermal barrier with foam plastic insulation so in those assemblies the additional language is unnecessary.

The proposal goes well beyond the requirements of Chapter 26 Section 2603.4.1.5 (1) and (2) by requiring an undefined 30-minute rating for an assembly with foam plastic that passes NFPA 276 or UL1256, or contains wood structural sheathing.

This creates a conflict with IBC Chapter 26 which conflicts with the User Note, "The use of plastics in building construction and components is addressed in Chapter 26". Therefore, in its proposed location and form the proposal would create confusion and potential non-compliance.

The proponent does not provide any supporting information that demonstrates the current approach to assembly fire testing is insufficient.

Additionally, a test method is not specified for the proposed fire-resistance rating, and the charging text requires separation of the foam plastic roof insulation but does not indicate what the separation actually entails.

The International Building Code (IBC) generally requires that a thermal barrier be installed when using foam plastic insulation. However, the IBC includes a number of exemptions to this requirement if products and systems are tested to rigorous fire safety standards. FM 4450 (NFPA 276) has been recognized by the building code for over 30 years as the standard for evaluating the fire performance of insulated roof systems installed on steel roof decks.

The development of FM 4450 was the result of a large industrial fire at the General Motor's factory in Livonia, Michigan. The event exposed the fire risk to roof decks when buildings have large, open interior spaces, such as a warehouse or manufacturing facility. The current version of FM 4450 relies on a calorimeter test that examines whether roof assembly components drip or pool and measures the tested assembly's fuel contribution over the duration of the 30-minute test.

In the 2000's, FM 4450 was reviewed through a consensus development process and published as NFPA 276 standard. Today, FM 4450 (NFPA 276) is referenced in the IBC and used by ISO/IEC 17065 Accredited Product Certification Bodies for evaluation reports. Data from FM Global reveals that over 800 manufacturers use the calorimeter test and approximately 423,000 roof assemblies have been approved using the consensus standard.

The proposal would add material costs, labor and roof assembly weight with no evidence of the added fire safety as alleged by the proponent, and with no evidence of a hazard from the current code requirements. The Committee reason statement for unanimous disapproval indicates they agree that these issues are currently addressed in Chapter 26.

The Polyisocyanurate Insulation Manufacturers Association (PIMA) is the national trade association representing Polyiso insulation manufacturers and suppliers to the Polyiso industry. PIMA advances the use of Polyiso insulation and is one of the nation's foremost industry advocates for energy-efficient practices and policies. In addition, PIMA has been recognized by both the Environmental Protection Agency (EPA) and the Sustainable Building Industries Council for advocacy and products.

**Cost Impact:** The net effect of the public comment and code change proposal will not increase or decrease the cost of construction

The public comment maintains current requirements.

## *Public Comment 3:*

**Proponent:** Mike Fischer, Kellen Company, representing The Center for the Polyurethanes Industry of the American Chemistry Council (mfischer@kellencompany.com) requests Disapprove.

**Commenter's Reason:** S7-18 is one of three code proposals (along with FS156-18 and S8-18) that seek to modify the fire testing requirements of the IBC for all foam plastic insulation materials in roof assemblies. All three were recommended for disapproval by the Committee. We request disapproval by the Public Comment Hearing attendees and the OGCV.

This proposal adds a requirement for roof assemblies containing foam plastic roof insulation to be separated by an assembly having a 30-min fire-resistance rating. These requirements are currently governed by IBC Section 2603.4.

The proponent does not provide any supporting information that demonstrates the current approach to assembly fire testing is insufficient. There are hundreds of approved roof assemblies containing foam plastic insulation materials including both rigid and spray polyurethane foam applications that meet the current test requirements. While some assemblies might require a thermal barrier to pass NFPA 276, there is no justification for adding in an extra requirement for assemblies that pass without need for thermal barrier protection.

The proposal does not specify a test method for the proposed fire-resistance rating, and as such is incomplete.

The proposal would add material costs, labor and roof assembly weight with no evidence of the added fire safety as alleged by the proponent, and with no evidence of a hazard from the current code requirements. The Committee reason statement for unanimous disapproval indicates they agree that these concerns are appropriately addressed in Chapter 26.

Please vote for disapproval of S7-18.

The ACC s Center for the Polyurethanes Industry (CPI) mission is to promote the growth of the North American polyurethanes industry through effective advocacy demonstrating how polyurethanes deliver sustainable outcomes, and creation of robust safety education and product stewardship programs.

**Cost Impact:** The net effect of the public comment and code change proposal will not increase or decrease the cost of construction

The public comment makes no change to current code.

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**S7-18**

# S9-18

IBC: 1508.1

## **Proposed Change as Submitted**

**Proponent:** Bill McHugh, representing Chicago Roofing Contractors Association (billmchugh-jr@att.net)

THIS PROPOSAL WILL BE HEARD BY THE IBC FIRE SAFETY CODE COMMITTEE. SEE THE IBC-FS HEARING AGENDA.

### **2018 International Building Code**

**Revise as follows**

**{BF} 1508.1 General.** The use of above-deck thermal insulation shall be permitted provided that such insulation is covered with an approved roof covering and passes the tests of NFPA 276 or UL 1256 when tested as an assembly.

#### **Exceptions:**

1. Foam plastic roof insulation shall conform to the material and installation requirements of Chapter 26.
2. Where a concrete or composite metal and concrete roof deck is used and the above-deck thermal insulation is covered with an approved roof covering.

**Reason:** The purpose of this proposal is to add an option to the allowable exceptions in the code. Currently the exception is limited to concrete roof deck and does not include a composite metal and concrete roof deck.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This proposal does not increase the cost of construction as it provides an alternative to the type of concrete roof deck used for foam plastic insulation.

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S9-18

## **Public Hearing Results**

**Committee Action:**

**As Submitted**

**Committee Reason:** The committee determined the proposed change made an excellent clarification. (Vote 12-1)

**Assembly Action:**

**None**

**S9-18**

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## **Individual Consideration Agenda**

**Public Comment 1:**

**Proponent:** Mike Fischer, Kellen Company, representing The Center for the Polyurethanes Industry of the American Chemistry Council (mfischer@kellencompany.com) requests Disapprove.

**Commenter's Reason:** S9-18 seeks to add an additional option for acceptable assemblies that contain above-deck thermal insulation over concrete roof decks.

The proposed language adds composite metal and concrete roof deck, but does not define what is meant by the phrase composite metal. The 2018 IBC provision assumes a concrete deck that is subject to the current code requirements for roofing and structural provisions. Without proper definitions of what types of metals, and what specific types of concrete, are intended to be used, the proposal is incomplete and unenforceable. Please vote for disapproval of S9-18.

The ACC s Center for the Polyurethanes Industry (CPI) mission is to promote the growth of the North American polyurethanes industry through effective advocacy demonstrating how polyurethanes deliver sustainable outcomes, and creation of robust safety education and product stewardship programs.

**Cost Impact:** The net effect of the public comment and code change proposal will not increase or decrease the cost of construction

The Public Comment makes no changes to current code.

**S9-18**

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# S17-18

IBC: 1705.14, 1705.14.1, 1705.14.2, 1705.14.3, 1705.14.4, 1705.14.4.1, 1705.14.4.2, 1705.14.4.3, 1705.14.4.4, 1705.14.4.5, 1705.14.4.6, 1705.14.4.7, 1705.14.4.8, 1705.14.4.9, 1705.14.5, 1705.14.6, 1705.14.6.1, 1705.14.6.2, 1705.14.6.3, Chapter 35, ASTM

## Proposed Change as Submitted

**Proponent:** Bill McHugh, The McHugh Company, representing National Fireproofing Contractors Association (Bill@mc-hugh.us)

THIS PROPOSAL WILL BE HEARD BY THE IBC FIRE SAFETY CODE COMMITTEE. SEE THE IBC-FS HEARING AGENDA.

## 2018 International Building Code

### Revise as follows

**[BF] 1705.14 Sprayed fire-resistant materials.** *Special inspections* and tests of sprayed fire-resistant materials applied to floor, roof and wall assemblies and structural members shall be performed in accordance with Sections 1705.14.1 through 1705.14.6. *Special inspections* shall be based on the fire-resistance design as designated in the *approved construction documents*. The tests set forth in this section shall be based on samplings from specific floor, roof and wall assemblies and structural members. *Special inspections* and tests shall be performed in accordance with ASTM XXXX after the rough installation of electrical, automatic sprinkler, mechanical and plumbing systems and suspension systems for ceilings, where applicable.

### Delete without substitution

**[BF] 1705.14.1 Physical and visual tests.** The *special inspections* and tests shall include the following to demonstrate compliance with the listing and the *fire-resistance rating*:

1. Condition of substrates.
2. Thickness of application.
3. Density in pounds per cubic foot ( $\text{kg/m}^3$ ).
4. Bond strength adhesion/cohesion.
5. Condition of finished application.

**[BF] 1705.14.2 Structural member surface conditions.** The surfaces shall be prepared in accordance with the *approved fire-resistance design* and the written instructions of *approved manufacturers*. The prepared surface of structural members to be sprayed shall be inspected by the special inspector before the application of the sprayed fire-resistant material.

**[BF] 1705.14.3 Application.** The substrate shall have a minimum ambient temperature before and after application as specified in the written instructions of *approved manufacturers*. The area for application shall be ventilated during and after application as required by the written instructions of *approved manufacturers*.

**[BF] 1705.14.4 Thickness.** Not more than 10 percent of the thickness measurements of the sprayed fire-resistant materials applied to floor, roof and wall assemblies and structural members shall be less than the thickness required by the *approved fire-resistance design*, and none shall be less than the minimum allowable thickness required by Section 1705.14.4.1.

**[BF] 1705.14.4.1 Minimum allowable thickness.** For design thicknesses 1 inch (25 mm) or greater, the minimum allowable individual thickness shall be the design thickness minus 1/4 inch (6.4 mm). For design thicknesses less than 1 inch (25 mm), the minimum allowable individual thickness shall be the design thickness minus 25 percent. Thickness shall be determined in accordance with ASTM E605. Samples of the sprayed fire-resistant materials shall be selected in accordance with Sections 1705.14.4.2 and 1705.14.4.3.

**[BF] 1705.14.4.2 Floor, roof and wall assemblies.** The thickness of the sprayed fire-resistant material applied to floor, roof and wall assemblies shall be determined in accordance with ASTM E605, making not less than four measurements for each 1,000 square feet (93 m<sup>2</sup>) of the sprayed area, or portion thereof, in each story.

**[BF] 1705.14.4.3 Cellular decks.** Thickness measurements shall be selected from a square area, 12 inches by 12 inches (305 mm by 305 mm) in size. Not fewer than four measurements shall be made, located symmetrically within the square area.

**[BF] 1705.14.4.4 Fluted decks.** Thickness measurements shall be selected from a square area, 12 inches by 12 inches (305 mm by 305 mm) in size. Not fewer than four measurements shall be made, located symmetrically within the square area, including one each of the following: valley, crest and sides. The average of the measurements shall be reported.

**[BF] 1705.14.4.5 Structural members.** The thickness of the sprayed fire-resistant material applied to structural members shall be determined in accordance with ASTM E605. Thickness testing shall be performed on not less than 25 percent of the structural members on each floor.

**[BF] 1705.14.4.6 Beams and girders.** At beams and girders thickness measurements shall be made at nine locations around the beam or girder at each end of a 12-inch (305 mm) length.

**[BF] 1705.14.4.7 Joists and trusses.** At joists and trusses, thickness measurements shall be made at seven locations around the joist or truss at each end of a 12-inch (305 mm) length.

**[BF] 1705.14.4.8 Wide-flanged columns.** At wide-flanged columns, thickness measurements shall be made at 12 locations around the column at each end of a 12-inch (305 mm) length.

**[BF] 1705.14.4.9 Hollow structural section and pipe columns.** At hollow structural section and pipe columns, thickness measurements shall be made at not fewer than four locations around the column at each end of a 12-inch (305 mm) length.

**[BF] 1705.14.5 Density.** The density of the sprayed fire-resistant material shall be not less than the density specified in the approved fire-resistance design. Density of the sprayed fire-resistant material shall be determined in accordance with ASTM E605. The test samples for determining the density of the sprayed fire-resistant materials shall be selected as follows:

1. From each floor, roof and wall assembly at the rate of not less than one sample for every 2,500 square feet (232 m<sup>2</sup>) or portion thereof of the sprayed area in each story.
2. From beams, girders, trusses and columns at the rate of not less than one sample for each type of structural member for each 2,500 square feet (232 m<sup>2</sup>) of floor area or portion thereof in each story.

**[BF] 1705.14.6 Bond strength.** The cohesive/adhesive bond strength of the cured sprayed fire-resistant material applied to floor, roof and wall assemblies and structural members shall be not less than 150 pounds per square foot (psf) (7.18 kN/m<sup>2</sup>). The cohesive/adhesive bond strength shall be determined in accordance with the field test specified in ASTM E736 by testing in-place samples of the sprayed fire-resistant material selected in accordance with Sections 1705.14.6.1 through 1705.14.6.3.

**[BF] 1705.14.6.1 Floor, roof and wall assemblies.** The test samples for determining the cohesive/adhesive bond strength of the sprayed fire-resistant materials shall be selected from each floor, roof and wall assembly at the rate of not less than one sample for every 2,500 square feet (232 m<sup>2</sup>) of the sprayed area, or portion thereof, in each story.

**[BF] 1705.14.6.2 Structural members.** The test samples for determining the cohesive/adhesive bond strength of the sprayed fire-resistant materials shall be selected from beams, girders, trusses, columns and other structural members at the rate of not less than one sample for each type of structural member for each 2,500 square feet (232 m<sup>2</sup>) of floor area or portion thereof in each story.

**[BF] 1705.14.6.3 Primer, paint and encapsulant bond tests.** Bond tests to qualify a primer, paint or encapsulant shall be conducted where the sprayed fire-resistant material is applied to a primed, painted or encapsulated surface for which acceptable bond strength performance between these coatings and the fire-resistant material has not been determined. A bonding agent approved by the SFRM manufacturer shall be applied to a primed, painted or encapsulated surface where the bond strengths are found to be less than required values.

Add new standard(s) follows

## CHAPTER 35 REFERENCED STANDARDS

# ASTM

ASTM International  
100 Barr Harbor Drive, P.O. Box  
C700  
West Conshohocken PA 19428-2959  
US

**Practice for the On-Site Inspection of Installed Fire Resistive Material with Annex and Appendix**

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**Reason:** Special inspection for sprayed fire-resistive materials (SFRM) fireproofing has been in the International Building Code for many years. To date, the requirements have been prescriptive and in the IBC, Chapter 17. Over the past few years, the contractors, manufacturers and consultants of SFRM Fireproofing have come together to build an inspection standard at ASTM. The document is the result of the industry efforts to come to consensus with this new standard. We respectfully submit this document for insertion into the 2021 IBC.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. The reason the proposal will not increase the cost of construction is that the methods used for inspection are the same as is in Chapter 17 of the IBC currently.

**Analysis:** A review of the standard proposed for inclusion in the code, ASTM - WK54567-2018, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2018.

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**S17-18**

## **Public Hearing Results**

**Committee Action:**

**Disapproved**

**Committee Reason:** The committee deemed it inappropriate to reference a draft standard. (Vote 13-0)

**Assembly Action:**

**None**

**S17-18**

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## **Individual Consideration Agenda**

### *Public Comment 1:*

**Proponent:** Bill McHugh, representing National Fireproofing Contractors Association (billmchugh-jr@att.net) requests As Submitted.

**Commenter's Reason:** The purpose of this public comment is to bring this topic up to the Public Comment Hearing Assembly. We hope that the ASTM Standard for SFRM Inspection is complete by hearing time. If not, we will withdraw the proposal based on the Fire-Safety Committee Action.

**Cost Impact:** The net effect of the public comment and code change proposal will not increase or decrease the cost of construction  
This proposal adds a new standard that brings an industry consensus document to this section of the International Building Code.

**Staff Analysis:** In order for the public comment to be considered, the new standard, ASTM - WK54567-2018, must be complete and readily available prior to October 24, 2018. (Section 3.6 of CP#28)

**S17-18**

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# S18-18

IBC: 1705.15, Chapter 35, ASTM

## **Proposed Change as Submitted**

**Proponent:** Bill McHugh, The McHugh Company, representing National Fireproofing Contractors Association (Bill@mc-hugh.us)

THIS PROPOSAL WILL BE HEARD BY THE IBC FIRE SAFETY CODE COMMITTEE. SEE THE IBC-FS HEARING AGENDA.

## **2018 International Building Code**

**Revise as follows**

~~{BF}~~ **1705.15 Mastic and intumescent fire-resistant coatings.** *Special inspections* and tests for mastic and intumescent fire-resistant coatings applied to structural elements and decks shall be performed in accordance with ~~AWCI 12-B, Draft ASTM Standard WK54767.~~ *Special inspections* and tests shall be based on the fire-resistance design as designated in the *approved construction documents*.

**Add new standard(s) follows**

### CHAPTER 35 REFERENCED STANDARDS

## ASTM

ASTM International  
100 Barr Harbor Drive, P.O. Box  
C700  
West Conshohocken PA 19428-2959  
US

**Draft Standard WK54567 - 2018:**

**Practice for the On-Site Inspection of Installed Fire Resistive Material with Annex and Appendix**

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**Reason:** The Intumescent fire-resistant coatings industry - contractors, manufacturers and consultants - worked together at ASTM to build a new consensus standard for special inspection of mastic and intumescent fire-resistant coatings. We respectfully submit this standard for insertion into the International Building Code, Chapter 17.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This proposal takes a new standard and improves on existing documents in the code resulting in uniform special inspection of fire-resistant coatings.

**Analysis:** A review of the standard proposed for inclusion in the code, ASTM - WK54567-2018, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2018.

**S18-18**

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## **Public Hearing Results**

**Errata:** Standard reference corrected to Draft ASTM Standard WK54767.

**Committee Action:**

**Disapproved**

**Committee Reason:** The committee disapproved based on the action taken on S17. (Vote 13-0)

**Assembly Action:**

**None**

**S18-18**

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## **Individual Consideration Agenda**

### *Public Comment 1:*

**Proponent:** Bill McHugh, representing National Fireproofing Contractors Association (billmchugh-jr@att.net) requests As Submitted.

**Commenter's Reason:** The purpose of this public comment is to bring this topic up to the Public Comment Hearing Assembly. We hope that the ASTM Standard for IFRM Inspection is complete by hearing time. If not, we will withdraw the proposal based on the Fire-Safety Committee Action.

**Cost Impact:** The net effect of the public comment and code change proposal will not increase or decrease the cost of construction

The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. This proposal adds a new standard that brings an industry consensus document to this section of the International Building Code.

**Staff Analysis:** In order for the public comment to be considered, the new standard, ASTM - WK54567-2018, must be complete and readily available prior to October 24, 2018. (Section 3.6 of CP#28)

**S18-18**

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# S20-18

IBC: 1705.15

## ***Proposed Change as Submitted***

**Proponent:** Bill McHugh, The McHugh Company, representing National Fireproofing Contractors Association (Bill@mc-hugh.us)

THIS PROPOSAL WILL BE HEARD BY THE IBC FIRE SAFETY CODE COMMITTEE. SEE THE IBC-FS HEARING AGENDA.

### **2018 International Building Code**

**Revise as follows**

**{BF} 1705.15 Mastic and intumescent fire-resistant coatings.** *Special inspections* and tests for mastic and intumescent fire-resistant coatings applied to structural elements and decks shall be performed in accordance with AWCI 12-B. *Special inspections* and tests shall be based on the fire-resistance design as designated in the *approved construction documents*. Additional inspections and tests shall not exceed an additional amount of 10 percent than required in AWCI-12-B.

**Reason:** The code states that a minimum amount of inspection is to take place but not a maximum amount of inspection. The inspection agency has no limit to the amount of inspection that can be conducted if this is not added to this section on special inspections. The maximum number comes from another standard that has been in the IBC Special Inspection Section for the past code cycles, ASTM E 2174 for Firestop Special Inspection.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This proposal limits the amount of inspection to a reasonable amount of maximum inspection to the code. It changes a variable expense to the building owner into a more fixed cost item.

**Staff Analysis:** The referenced standard within this proposal, AWCI 12-B, is currently referenced in the I-codes.

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S20-18

## **Public Hearing Results**

**Committee Action:**

**Disapproved**

**Committee Reason:** The committee found the language unclear and confusing. (Vote 13-0)

**Assembly Action:**

**None**

**S20-18**

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## **Individual Consideration Agenda**

### *Public Comment 1:*

**Proponent:** Bill McHugh, representing National Fireproofing Contractors Association (billmchugh-jr@att.net) requests As Modified by This Public Comment.

**Modify as follows:**

### **2018 International Building Code**

**1705.15 Mastic and intumescent fire-resistant coatings.** *Special inspections* and tests for mastic and intumescent fire-resistant coatings applied to structural elements and decks shall be performed in accordance with AWCI 12-B. *Special inspections* and tests shall be based on the fire-resistance design as designated in the *approved construction documents*. Additional inspections and tests shall not exceed ~~an additional amount of 10 percent than required~~ 110 percent of that specified by the referenced standards in AWCI-12-B.

**Commenter's Reason:** This public comment is submitted to provide consistency to the spray fire-resistant materials and intumescent fire-resistant materials sections due to S16-18 which was approved by the Fire-Safety Committee in April, Columbus, OH. The percentages in S16 have been moved to S20 as approved by the committee.

**Cost Impact:** The net effect of the public comment and code change proposal will not increase or decrease the cost of construction

This code proposal will not increase the cost of construction. The proposal attempts to contain costs of construction. It is difficult to calculate an exact cost savings due to variability in installation contractors and inspection agencies.

**S20-18**

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# S21-18

IBC: 1705.17

## **Proposed Change as Submitted**

**Proponent:** William Koffel, representing Firestop Contractors International Association (wkoffel@koffel.com)

THIS PROPOSAL WILL BE HEARD BY THE IBC FIRE SAFETY CODE COMMITTEE. SEE THE IBC-FS HEARING AGENDA.

### **2018 International Building Code**

**Revise as follows**

**[BF] 1705.17 Fire-resistant penetrations and joints.** In high-rise buildings or in buildings assigned to *Risk Category III or IV, or fire areas containing Group R occupancies with an occupant load greater than 250, special inspections for through-penetrations, membrane penetration firestops, fire-resistant joint systems and perimeter fire barrier systems* that are tested and *listed* in accordance with Sections 714.4.1.2, 714.5.1.2, 715.3 and 715.4 shall be in accordance with Section 1705.17.1 or 1705.17.2.

**Reason:** Fire resistance rated compartmentation is a critical fire protection feature in many buildings with Group R occupancies. When through penetration firestop systems and fire resistant joint systems are not properly installed, the integrity of the compartmentation is compromised. The existing requirement for special inspections is proposed to be expanded to include larger buildings with Group R occupancies. The occupant load of 250 is consistent with what is used to define Group E occupancies that are Category III. Without this change, the special inspection requirement would only apply to Group R occupancies in high-rise buildings.

**Cost Impact:** The code change proposal will increase the cost of construction. The addition of this special inspection requirement does increase the cost of construction which will vary based on the quality management system of the firestop contractor.

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**S21-18**

# **Public Hearing Results**

**Committee Action:**

**As Submitted**

**Committee Reason:** The committee determined the proposal offered a means to improve fire stopping. (Vote 13-0)

**Assembly Action:**

**None**

**S21-18**

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## **Individual Consideration Agenda**

### ***Public Comment 1:***

**Proponent:** Margo Thompson, Newport Ventures, representing National Association of Home Builders (mthompson@newportventures.net); Dan Buuck, National Association of Home Builders (dbuuck@nahb.org) requests Disapprove.

**Commenter's Reason:** The Group E comparison in the reason statement of the proposal is invalid since the 250 person occupant load taken from Risk Category III in IBC Table 1604.5 applies to persons assembled in one room. The ASCE 7 rationale behind the Risk Category III classification added to the 2010 edition of the standard states, "Risk Category III includes buildings and structures that house a large number of persons in one place, such as theaters, lecture halls, and similar assembly uses and buildings with persons having limited mobility or ability to escape to a safe haven in the event of failure, including elementary schools, prisons, and small health-care facilities." Applying the same requirements to Group R occupancies as those listed is overly restrictive.

Risk Categories III and IV pertain to buildings that represent substantial hazard to human life in the event of failure or those designated as essential structures. They include structures associated with utilities required to protect the health and safety of a community, power-generating stations, water-treatment and sewage-treatment plants, structures housing hazardous substances, such as explosives or toxins, which if released in quantity could endanger the surrounding community, and petrochemical process facilities that contain large quantities of H25 or ammonia. Clearly, Group R occupancies do not correlate with either Category III or Category IV.

No documentation has been provided regarding either the number or percent of occurrences of improperly installed firestop penetrations or joint systems or consequences. No documentation has been provided regarding consequences such as increased fire spread due to improperly sealed penetrations.

NFPA data shows that apartment building fires, civilian deaths, and property damage have all steadily declined since 1980. Between 1980 and 2016, there has been a 34% drop in the number of apartment fires, a 70% drop in deaths, and a 79% drop in property damage. <https://www.nfpa.org/News-and-Research/Fire-statistics-and-reports/Fires-by-property-type/Residential/Apartment-structure-fires>

There are already adequate jurisdictional inspections of fire penetrations and joints. Currently, these areas are carefully inspected as part of the regular fire-proofing inspections and additional special inspections are unnecessary.

At occupancies greater than 250 people, this would mean multifamily buildings of approximately 50,000 sf and larger (assumes 250 persons \* 200sf/person) and approximately 50-75 units. An analysis of Census data by NAHB showed that the size of multifamily buildings is increasing. Between 2010 and 2015, 48% of the multifamily buildings constructed had more than 50 units. <http://eyeonhousing.org/2015/10/rising-share-of-new-multifamily-units-in-large-buildings/> Thus, this proposal would impact a large number of the multifamily buildings being built. Special inspections for every pipe or conduit would have a significant negative impact on cost. The proponents have provided no quantification of the cost range for a typical building that would be affected.

**Cost Impact:** The net effect of the public comment and code change proposal will decrease the cost of construction. Average blanket costs per sf are difficult to quantify due to the large number of variables involved such as size of building, type of construction, number of different types of penetrations, etc. However, conversations with several inspectors (members of FCIA) indicated that for a hypothetical 50,000 sf 4-story apartment building with 50-75 units, a minimum cost range would be \$3,00-\$4,00 and could be much higher. Hourly rates of inspectors range from approximately \$100/hour for a qualified/experienced inspector to \$185/hour or more for a Professional Engineer - which many in this field are.

Allowable options for inspections per ASTM E2174 and ASTM E2393 include 1) 10% of each penetration type observed during installation or 2) 2% of each penetration type inspected post-construction via destructive methods. Either method will significantly impact schedule and thereby also increase costs.

