FS103–06/07
715.3 (New), 715.3.1 (New), 715.3.2 (New), 715.3.3 (New)

Proponent: Kate Steel, representing Fire & Safety Glazing Council

Add new text as follows:

715.3 Classification of glazing material. Glazing material tested and rated in accordance with Section 703 and Section 715 shall be classified and labeled under the following rating classifications:

715.3.1. R-Rated glazing. Fire-resistance rated glazing determined in accordance with ASTM E119.

715.3.2. P-Rated glazing. Fire-protection rated glazing determined in accordance with NFPA 252 or NFPA 257.

715.3.3. Identification. Glazing classified in accordance with 715.3 shall be identified by a designation of R-xxx or P-xxx, where xxx states the rating period, in hours or minutes, which shall be included as a permanent mark on the labels issued in accordance with sections 706.2.1, 715.4.6.3, and 715.5.8.

(Renumber subsequent sections)

Reason: The classification of glazing as "R" for meeting fire-resistance and limited temperature rise criteria in accordance with ASTM E119, or "P" for fire-protection testing of fire endurance capabilities to NFPA 252 and 257, is a simple way to distinguish between two products that are both tested and listed for use in 45-and 60-minute doors, sidelites and window assemblies, where one also meets the radiant heat and temperature rise criteria of ASTM E119.

The "DH-XXX" and "OH-XXX" labeling system approved last code cycle does not provide a distinction between fire-resistance and fire-protection products labeled for 45, 60-and 90-minute applications. That system is also proving to be confusing in practical application, and creates the potential for costly replacements of products shipped out and incorrectly labeled for the end-use application.

The most significant inadequacy in the current DH-XXX and OH-XXX labeling system is that it does not distinguish between products that limit radiant heat transfer, and those that do not. Manufacturers and distributors who supply both types of products have pointed out that the current system provides that they mark both products the same way, and they are asking for a classification and labeling requirement that will allow them to indicate to the end user the performance distinctions in their products.

Manufacturers and distributors have also pointed out the practical problems of labeling their products for a particular end use installation, when they aren't given that information in the order process. They note that their fire-rated glazing products are tested and listed to both NFPA 252 (the door assembly fire test) and NFPA 257 (the window assembly fire test), and carry overlapping listings. More often than not, the glazing orders they receive specify the size and number of glazing panels needed, but do not indicate what the end use is, i.e., whether the installation is in a fire door or door/sidelight/transom assembly, or a window assembly. To get that information—if they can get it at all—requires substantial follow-up calls, and delays the order and supply process. Manufacturers have aptly pointed out the likely scenario of marking a product D-XXX, only to get a call from the glazing contractor that it was installed in a window assembly, and asking what to do about it because the code enforcer is calling for a different label. On large orders, where identical size panels are being shipped, some labeled DH-XXX for doors, and some OH-XXX for windows, the chances of getting the panels mixed up during the installation process, is significant. To avoid that, they can simply mark the products with both DH-XXX and OH-XXX, but then any distinction that the labeling requirement was supposed to provide the end-user, is lost.

The current labeling system is cumbersome, presents practical application problems that will cost time and money to manufacturers and building owners, and, in the end, fails to achieve the important goal fire-rated glazing manufacturers and end-users share—identification of which products limit radiant heat transfer, and which don't. The proposed classification and labeling of products as "P-XXX for fire-protection-rated, or "R-XXX" for fire-resistance rated, is simple, straight-forward, and provides that critical information.

The terms "resistance " and "protection" have specific definitions under IBC and NFPA, and the R and P classification system would help reinforce those distinctions, and provide the industry the tools to make this labeling program work. A similar classification program in Europe, where parallel designations of "I" for fire resistance (i.e., insulated) products, and "E" for fire-protection (i.e., fire endurance only) has proven widely successful, and has provided the basic framework for further clarification in specific code sections addressing permitted end-use.

Cost Impact: The code change proposal will not increase the cost of construction. It may decrease costs of implementing the current labeling requirements.

Analysis: As written, this code change is related to and dependent on the approval of the proponent's code changes FS35-06/07, FS117-05/06 and FS127-06/07 which refer to this new Section 715.3. Approval of this item without approval of the other code changes would require modification.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS104–06/07
Table 715.4

Proponent: Tony Crimi, A.C., Consulting Solutions Inc., representing International Firestop Council

Revise table as follows:

TABLE 715.4
FIRE DOOR AND FIRE SHUTTER FIRE PROTECTION RATINGS

TYPE OF ASSEMBLY	REQUIRED ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4 3 2 11/2	3 3a 11/2 11/2
Fire barriers having a required fire-resistance rating of 1 hour: Shaft, exit enclosure and exit passageway walls Other fire barriers	 1 1	 1 3/4
Fire partitions*:* Corridor walls Other fire partitions	 1 0.5 1 0.5	 1/3[b] 1/3[b] 3/4 1/3
Exterior walls	3 2 1	11/2 11/2 3/4
Smoke barriers	1	~~1/3~~[b] 3/4

a. Two doors, each with a fire protection rating of 1½ hours, installed on opposite sides of the same opening in a firewall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.
b. For testing requirements, see Section 715.3.3.

Reason: The purpose of this proposal is to confirm and identify the fire-protection rating for fire door assemblies in smoke barriers.

The change to Table 715.3 of the 2003 IBC (now Table 715.4 of IBC 2006) regarding smoke barriers is not consistent with all other entries in the Table for the minimum level of fire protection rating needed for a 1 h fire resistance rated wall assembly.

In the last Code cycle, an omission in the 2003 IBC was identified in regards to clarifying the fire protection requirements for fire door and fire shutter assemblies in smoke barriers in Table 715.4. Section 709.3 establishes the fire resistance rating of a Smoke Barrier. Section 709.5 states that openings in smoke barrier shall be protected in accordance with Section 715 (except for certain cross-corridor doors in Group I-2 Occupancies). While Table 715.4 had omitted to specify the required fire protection ratings in Smoke Barriers, in all instances where a 1 h fire resistance rating is required, Section 715.4 had always required ¾ hour fire door or fire shutter assemblies.

Because Smoke Barriers are required to have 1 h fire resistance rating, the same level of protection as any other 1 h fire resistance rating should apply. In the last cycle, the Committee Reason was based on the position that "The code presently does not contain specific requirements for the fire protection rating of doors in Smoke Barriers, leaving the issue to interpretation." In fact, the Code never differentiated between smoke barriers and fire protection ratings required for fire door assemblies in any other 1 h fire resistance rated walls. On that basis the Code had already established the fire protection rating, but merely failed to identify it in Table 715.4. There is no rationale provided for changing the existing fire protection ratings for 1 h fire resistance rated smoke barriers from ¾ h to 20 minutes.

While the committee reasoned that "The requirement for 20 minutes in smoke barriers would seem appropriate, given that the performance of a smoke barrier is related primarily to limitation of smoke spread", the IBC itself had established that level of protection as a 1 h fire resistance rating, without differentiating Smoke Barriers from other 1 h fire resistance rated walls or the fire protection ratings for fire doors in those walls. The rationale offered would seem to be more appropriate to smoke partitions than to smoke barriers.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS105–06/07
715.4.1, 715.4.2, 715.4.4 and 715.4.4.1

Proponent: Philip Brazil, P.E., Reid Middleton, Inc., representing himself

Revise as follows:

715.4.1 Side-hinged or pivoted swinging doors. Fire door assemblies with side-hinged and pivoted swinging doors shall be tested in accordance with NFPA 252 or UL 10C. After 5 minutes into the NFPA 252 test, the neutral pressure level in the furnace shall be established at 40 inches (1016 mm) or less above the sill.

715.4.2 Other types of doors. Fire door assemblies with other types of doors, including swinging elevator doors and fire shutter assemblies, shall be tested in accordance with NFPA 252 or UL 10B. The pressure in the furnace shall be maintained as nearly equal to the atmospheric pressure as possible. Once established, the pressure shall be maintained during the entire test period.

715.4.4 Doors in exit enclosures and exit passageways. Fire door assemblies in exit enclosures and exit passageways shall have a maximum transmitted temperature end point of not more than 450ºF (250ºC) above ambient at the end of 30 minutes of standard fire test exposure.

Exception: The maximum transmitted temperature rise is not limited in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

715.4.4.1 Glazing in doors. Fire-protection-rated glazing in excess of 100 square inches (0.065 m^2) shall be permitted in fire door assemblies when tested ~~in accordance with NFPA 252~~ as components of the door assemblies and not as glass lights, and shall have a maximum transmitted temperature rise of 450ºF (250ºC) in accordance with Section 715.4.4.

Exception: The maximum transmitted temperature end point is not required in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

Reason: The revisions to Section 715.4.1 and 715.4.2 are intended to make their terminology consistent with the charging statement in Section 715.4, which refers to fire door and fire shutter assemblies. The revision to Section 715.4.4.1 1s intended to permit the installation of fire-protection-rated glazing greater than 100 square inches in area when determined by tests conducted in accordance with UL 10B, UL 10C or NFPA 252, as applicable. The current language would only permit the installation when established by NFPA 252 tests. The choice of test standard is governed by the applicable requirements in Section 715.4.1 or 715.4.2.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS106–06/07
715.4.3.1

Proponent: Bob Eugene, Underwriters Laboratories Inc.

Revise as follows:

715.4.3.1 Smoke and draft control. Fire door assemblies shall also meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 $m^3/s \cdot m^2$) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited. Installation of smoke doors shall be in accordance with NFPA 105.

Reason: To add criteria for smoke and draft control doors consistent with doors in smoke partitions. With the reformatting of these provisions in the last code cycle, the leakage ratings were removed. As the code is currently drafted, the leakage criteria for smoke barriers are not clear. This change provides consistency with NFPA 105.

Cost Impact: The code change proposal will not increase cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS107–06/07
715.4.3.2

Proponent: Wayne Carson, Carson Associates Inc., SAFTIFIRST, a division of O'Keefee's Inc.

Revise as follows:

715.4.3.2 Glazing in door assemblies. In a 20-minute fire door assembly, the glazing material in the door itself shall have a minimum fire-protection rating of 20 minutes and shall be exempt from the hose stream test. Glazing material in any other part of the door assembly, including transom lites and sidelites, shall be tested in accordance with NFPA 257, ~~including~~ and shall be exempt from the hose stream test, in accordance with Section 715.5.

Reasons: Delete current requirements for hose stream test on corridor glazing.

This code change will better align the code requirements for corridor walls and delete the inconsistency for protecting one opening (doors) from other openings (glazing) in the corridor wall.

The purpose of the corridor wall requirement was to protect the egress path from smoke and heat for the time it takes people to evacuate that floor. The one-hour wall requirement was used as a method to establish a quality of construction, a design and construction requirement that can be easily determined during plan review and inspections and not as a minimum absolute requirement of 1 hour fire resistance for protecting the corridor. The use of the 20 minute door establishes the intent of this code provision, it was not 1 hour fire resistance.

There is considerable inconsistency in the hose stream test requirement. For example, walls tested for less than one hour do not require the hose stream test, yet we test glazing over 20 minute rated.

The hose stream test is not applicable to the level of protection intended for corridors and is unnecessary. The European standards do not require the hose stream test for any glazing in fire rated construction including ISO 834-8:2002.

Cost Impact: This code change will not increase the cost of construction. This code change will reduce the cost of acceptable glazing materials.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS108–06/07
715.4.4, 715.4.4.1

Proponent: William F. O'Keeffe, SAFTI FIRST

Revise as follows:

715.4.4 Doors in exit enclosures and exit passageways. Fire door assemblies in exit enclosures and exit passageways shall have a maximum transmitted temperature end point of not more than 450°F (250°C) above ambient at the end of 30 minutes of standard fire test exposure.

Exception: The maximum transmitted temperature rise is not ~~limited~~ required in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

715.4.4.1 Glazing in doors. Fire-protection-rated glazing in excess of 100 square inches (0.065 m^2) shall be permitted in fire door assemblies when tested in accordance with NFPA 252 as components of the door assemblies and not as glass lights, and shall have a maximum transmitted temperature rise of 450°F (250°C) in accordance with Section 715.4.4.

Exception: The maximum transmitted temperature ~~end point~~ rise is not required in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

Reason: Clarify the code for consistency between the exceptions in 715.4.4 and 715.4.4.1

The current code wording is inconsistent in the use of the terms "end point" and "rise", and the words "limited" and "required"

The term "rise" was added to the exception in 715.4.4 during the last code cycle. To be consistent with the last code cycle, the term "rise" should also replace "end point" in the exception in 715.4.4.1. Likewise, the terms "limited" and "required" should both be the same for consistency. The term "required" is more definitive and clear than the term "limited". With these changes, both exceptions would be consistent.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS109–06/07
715.4.4.1

Proponent: William F. O'Keeffe, SAFTI FIRST

Revise as follows:

715.4.4.1 Glazing in doors. Fire-protection-rated glazing in excess of 100 square inches (0.065 m^2) shall be permitted in fire door assemblies when tested in accordance with NFPA 252 as components of the door assemblies and not as glass lights, and shall have a maximum transmitted temperature rise of 450°F (250°C) in accordance with Section 715.4.4.

Exception: The maximum transmitted temperature end point ~~is~~ and the hose stream test in NFPA 252 are not required in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

Reason: Revise the code to allow non hose stream fire protective glazing that meets the fire endurance portion of NFPA252 to be used under the exception. This code change will allow alternate less expensive glazing materials.

The hose stream test as applied to glazing used in doors is being misapplied for the following reasons:

1. Hose stream not originally designed for the glazing products. Hose developed as an easy, uniform way to evaluate the integrity of building components not thermal shock.(100)
2. Fitzugh Taylor, ranking official at NBS and secretary to C-5 later known as E-5 committee of ASTM wrote it is the intent the fire resistance classification to register performance during the period of fire exposure and not be construed as having determined suitability for use after the exposure.(202)
3. For those of the opinion the hose stream test simulates fire fighting, discussions with fire officials say they are not concerned about failure of glazing in doors due to the application of water from their hoses because once they get to the fire, they want access to the fire.
4. Field safety shows glazing products tested without hose stream are not failing when sprinklers go off.
5. International (Europe, Asia, Australia etc) fire test standards applicable to glazing products do not have a hose stream test.

Bibliography:
100-Katy Devlin article on Analyzing hose stream tests in Glass Magazine
202-Gypsum Association Position Paper in 1994

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS110–06/07
715.4.5.1

Proponent: Thomas R. Janicak, Ceco Door Products, An ASSA ABLOY Door Group Company, representing Steel Door Institute

Revise as follows:

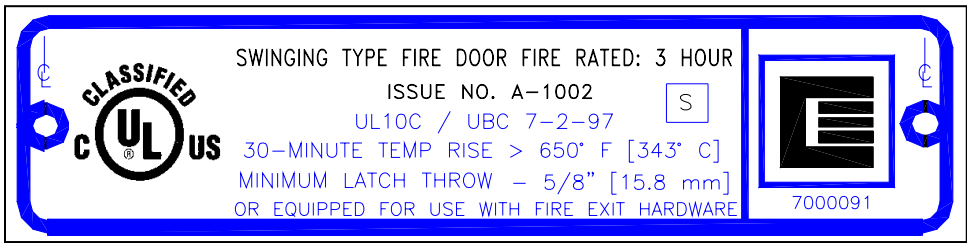
715.4.5.1 Fire door labeling requirements. Fire doors shall be labeled showing the name of the manufacturer or other identification readily traceable back to the manufacturer, the name or logo of the third-party inspection agency, the fire protection rating and, where required for fire doors in exit enclosures and exit passageways by Section 715.4.4, the maximum transmitted temperature end point. Smoke and draft control doors complying with UL 1784 shall be labeled as such and shall also comply with Section 715.4.5.3. Labels shall be approved and permanently affixed. The label shall be applied at the factory or location where fabrication and assembly are performed.

Reason: As written, Section 715.3.5 does not accurately define what is the standard labeling practice employed by fire door manufactures.

To bring the code in line with the labeling methods currently authorized by Underwriters Laboratories and Intertek Testing services (Warnock Hersey).

1) In lieu of the company name, the use of a corporate logo has been a standard practice employed by manufacturers. A listing of these logos can be found at the rear of the Underwriters Laboratories Fire Resistance Directory.
2) Both UL and ITS provide what is termed a standard or stock label. These labels are generic in nature and do not include the name of the manufacturer producing the fire door. Smaller companies who do not have their own combination type labels printed and inventoried typically use them. What is required by the certification agencies when these labels are used is as follows:
   a) Underwriters Laboratories requires that the fire door manufacturer engrave or stamp into the label either its Follow-Up service Procedure Number or Company name. In most cases, the file number will be entered. A building official would find these file numbers cross-referenced to the manufacturer on the UL website or by calling UL directly for the information.
   b) Intertek Testing Services (Warnock Hersey) labels are traceable back to the fire door manufacturer by means of a serial number.

Below is a typical UL label currently being used by Ceco Door Products. You will note that logos for both the manufacturer and inspection agencies are used in lieu of the names.



Another issue of concern is a statement in the code that says: “Smoke and draft control doors complying with UL 1784 shall be labeled as such.” You will note on the label on the label that the letter “S” appears in a box. This is a shorthand method of indicating compliance to that requirement. This needs to be reflected in the code.

Cost Impact: The code change proposal will not increase the cost of construction. Small fire door manufacturers and labeling distribution will see a cost reduction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS111–06/07
715.4.5 (New)

Proponent: John Berry, AIA, Cole + Russell Architects, Inc.

Add new text as follows:

715.4.5 Door assemblies in fire partitions separating sleeping units and dwelling units in R-1 & R-2 Uses. Where two single-leaf doors are included in a single rated frame in a common fire partition connecting either two sleeping units or two dwelling units in R-1 & R-2 Uses, only one door needs to be fire rated in accordance with Table 715.4.

(Renumber subsequent sections)

Reason: Adding the new text confirms the traditional practice of only providing one rated door when two doors are provided separating sleeping and dwelling units. This is a common feature in transient (R-1) and non-transient (R-2) hotels. This approach coordinates with the requirements of 715.4.7, which allows the rated door to be provided without any provisions for self-closing. Furthermore, requiring both doors to be fire rated to the requirements of Table 715.4, results in double the protection to the door opening, which actually will exceed the rating of the wall in which the opening is located. Application of this concept is varied across the country. Adding this text will clarify the requirement.

The decision to place this additional section in the code as Section 715.4.5 is appropriate to follow Section 715.4.3 & 715.4.4, both of which address specific requirements for unique situations, similar to the requirements included in the proposed Section 715.4.5.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS112–06/07
715.4.6.1

Proponent: William F. O'Keeffe, SAFTI FIRST

Revise as follows:

715.4.6.1 Size limitations. Wired glass used in fire doors shall comply with Table 715.5.3. Other fire-protection-rated glazing shall comply with the size limitations of NFPA 80.

Exceptions:

1. Fire-protection-rated glazing ~~in fire doors~~ located in fire walls shall be prohibited except ~~that where serving as~~ where serving in a fire door in a horizontal exit, a self-closing swinging door shall be permitted to have a vision panel of not more than 100 square inches (0.065 m^2) without a dimension exceeding 10 inches (254 mm).
2. Fire-protection-rated glazing shall not be installed in fire doors having a 1½-hour fire protection rating intended for installation in fire barriers, unless the glazing is not more than 100 square inches (0.065 m^2) in area.

Reason: Clarify the code. This code change will clearly state that fire protective glazing is prohibited in fire walls with the exception of the use in vision panels limited to 100 square inches in doors.

This proposal is editorial and suggests wording to clarify the code.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS113–06/07
715.4.6.1, 715.5, 715.5.3, Table 715.5.3, 715.5.4

Proponent: William F. O'Keeffe, SAFTI FIRST

1. Revise as follows:

715.4.6.1 Size limitations. ~~Wired glass~~ Fire-protective-rated glazing used in fire doors ~~shall comply with Table 715.5.3. Other fire-protection-rated glazing~~ shall comply with the size limitations of NFPA 80.

Exceptions:

1. Fire-protection-rated glazing in fire doors located in fire walls shall be prohibited except that where serving as a horizontal exit, a self-closing swinging door shall be permitted to have a vision panel of not more than 100 square inches (0.065 m^2) without a dimension exceeding 10 inches (254 mm).
2. Fire-protection-rated glazing shall not be installed in fire doors having a 11/2-hour fire protection rating intended for installation in fire barriers, unless the glazing is not more than 100 square inches (0.065 m^2) in area.

715.5 Fire-protection-rated glazing. Glazing in fire window assemblies shall be fire-protection rated in accordance with this section and Table 715.5. Glazing in fire door assemblies shall comply with Section 715.4.6. Fire-protection-rated glazing shall be tested in accordance with and shall meet the acceptance criteria of NFPA 257. Fire-protection-rated glazing shall also comply with NFPA 80. Openings in nonfire-resistance- rated exterior wall assemblies that require protection in accordance with Section 704.3, 704.8, 704.9 or 704.10 shall have a fire-protection rating of not less than ¾ hour.

Exceptions:

1. Wired glass in accordance with Section 715.5.3.
2. Fire-protection-rated glazing in 0.5-hour fire-resistance-rated partitions is permitted to have an 0.33-hour fire protection rating.

2. Delete without substitution as follows:

715.5.3 Wired glass. Steel window frame assemblies of 0.125-inch (3.2 mm) minimum solid section or of not less than nominal 0.048-inch-thick (1.2 mm) formed sheet steel members fabricated by pressing, mitering, riveting, interlocking or welding and having provision for glazing with 1/4 inch (6.4 mm) wired glass where securely installed in the building construction and glazed with 1/4 inch (6.4 mm) labeled wired glass shall be deemed to meet the requirements for a 3/4-hour fire window assembly. Wired glass panels shall conform to the size limitations set forth in Table 715.5.3.

TABLE 715.5.3
LIMITING SIZES OF WIRED GLASS PANELS

OPENING FIRE PROTECTION RATING	MAXIMUM AREA (square inches)	MAXIMUM HEIGHT (inches)	MAXIMUM WIDTH (inches)
3 hours	0	0	0
11/2-hour doors in exterior walls	0	0	0
1 and 11/2 hours	100	33	10
3/4 hour	1,296	54	54
20 minutes	Not Limited	Not Limited	Not Limited
Fire window Assemblies	1,296	54	54

For SI: 1 inch = 25.4 mm, 1 square inch = 645.2 mm2.

715.5.4 Nonwired glass. Glazing other than wired glass in fire window assemblies shall be fire-protection-rated glazing installed in accordance with and complying with the size limitations set forth in NFPA 80.

Reason: Delete current requirements. Wired glass should be designated as fire-protection-rated glazing to be consistent with how other types of glazing products are described.

Wired glass does not meet the safety glazing requirements in 715.4.6.4 and would normally not be eligible for use in all fire rated door assemblies and fire window assemblies in areas subject to human impact. The use of wired glass and the qualifications for use was permitted and specified in the code for fire rated applications because it was exempt from the safety glazing requirements of Section 2406 by the Federal Government and it needed to be specifically referenced in the code as an exemption. When wired glass loss this exemption for complying with Chapter 24, Section 2406, the need to have specific requirements covering this specific type of glazing is no longer needed. Describing a specific type of fire-protection-rated glazing without including all other types of fire-protection-rated glazing in similar detail creates a business advantage for the wired glass product by being specifically mentioned in the code. All glazing products are described as fire-protection-rated glazing and shall comply with NFPA 80 per 715.4.6.1 and 715.5. Wired glass should be included as fire-protection-rated glazing to be consistent and fair. The paragraphs and tables referencing wired glass should be deleted at this time to eliminate the marketing and business advantage created by reference in the code.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS114–06/07
715.4.6.3.1, 715.5.8.1

Proponent: William F. O'Keeffe, SAFTI FIRST

Revise as follows:

715.4.6.3.1 Identification. For fire-protection-rated glazing used in doors, the label shall bear the following four-part identification: "D – H or NH – T or NT – XXX." "D" indicates that the glazing shall be used in fire door assemblies and that the glazing meets the fire resistance requirements of the test standard. "H" shall indicate that the glazing meets the hose stream requirements of the test standard. "NH" shall indicate that the glazing does not meet the hose stream requirements of the test. "T" shall indicate that the glazing meets the temperature requirements of Section 715.4.4.1. "NT" shall indicate that the glazing does not meet the temperature requirements of Section 715.4.4.1. The placeholder "XXX" shall specify the fire-protection-rating period, in minutes.

715.5.8.1 Identification. For fire-protection-rated glazing used in window openings, the label shall bear the following two-part identification: "OH – XXX." "OH" indicates that the glazing meets both the fire-resistance and the hose-stream requirements of NFPA 257 and is permitted to be used in openings. "XXX" represents the fire-protection rating period, in minutes, that was tested.

Reason: Clarify the code. This code change adds clarity by defining the specific glazing end use applications.

The addition of "used in doors" and "used in window openings" adds clarity by defining the end use application of doors and window openings respectively that is currently not specified. With these new labeling requirements, it is important to have each requirement stand alone and not require the user of this code to refer back to previous sections to figure out which application the new labeling identification pertains to.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS115–06/07
715.4.6.3.1, 715.5.8.1

Proponent: William F. O'Keeffe, SAFTI FIRST

Revise as follows:

715.4.6.3.1 Identification. For fire-protection-rated glazing, the label shall bear the following four-part identification: "D – H or NH – T or NT – XXX." "D" indicates that the glazing shall be used in fire door assemblies and that the glazing meets the fire ~~resistance~~ protection requirements of the test standard. "H" shall indicate that the glazing meets the hose stream requirements of the test standard. "NH" shall indicate that the glazing does not meet the hose stream requirements of the test. "T" shall indicate that the glazing meets the temperature requirements of Section 715.4.4.1. "NT" shall indicate that the glazing does not meet the temperature requirements of Section 715.4.4.1. The placeholder "XXX" shall specify the fire-protection-rating period, in minutes.

715.5.8.1 Identification. For fire-protection-rated glazing, the label shall bear the following two-part identification: "OH – XXX." "OH" indicates that the glazing meets both the fire~~-resistance~~ protection and the hose-stream requirements of NFPA 257 and is permitted to be used in openings. "XXX" represents the fire-protection rating period, in minutes, that was tested.

Reason: Substituting correct terminology. This code change corrects the terminology between resistance and protection.

The glazing in these two requirements are fire-protection-rated rather than fire-resistance-rated types. Resistance refers to products that limit the radiation as noted in 715.2. This change will be consistent with the terminology of fire-protection-rated glazing covered in this section of code.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS116–06/07
715.4.6.3.1

Proponent: William E. Koffel, P.E., Koffel Associates, Inc., representing Fire Rated Glazing Industry

Revise as follows:

715.4.6.3.1 Identification. For fire-protection-rated glazing, the label shall bear the following four-part identification: "D – H or NH – T or NT – XXX." "D" indicates that the glazing shall be used in fire door assemblies and that the glazing meets the fire ~~resistance~~ protection requirements of ~~the test standard~~ NFPA 252. "H" shall indicate that the glazing meets the hose stream requirements of the test standard. "NH" shall indicate that the glazing does not meet the hose stream requirements of the test. "T" shall indicate that the glazing meets the temperature requirements of Section 715.4.4.1. "NT" shall indicate that the glazing does not meet the temperature requirements of Section 715.4.4.1. The placeholder "XXX" shall specify the fire-protection-rating period, in minutes.

Reason: The proposal improves the current code text in two ways. First, the current Code text refers to "the test standard" without specifying what test standard. As a comparison, the other identification sections (706.2.1 and 715.5.8.1) both specifically identify the test standard. Secondly, the current text incorrectly refers to the performance of such glazing as having a fire resistance performance when in fact it is a fire protection rating.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS117–06/07
715.4.6.3, 715.4.6.3.1

Proponent: Kate Steel, representing Fire & Safety Glazing Council

1. Revise as follows:

715.4.6.3 Labeling requirements. Fire-protection-rated and fire-resistance rated glazing shall bear a label or other identification showing the name of the manufacturer, the test standard and ~~information required in Section 715.5.8.1~~ the classification required in Section 715.3.3, that shall be issued by an approved agency and shall be permanently affixed to the glazing.

2. Delete without substitution as follows:

~~**715.4.6.3.1 Identification.** For fire-protection-rated glazing, the label shall bear the following four-part identification: "D – H or NH – T or NT – XXX." "D" indicates that the glazing shall be used in fire door assemblies and that the glazing meets the fire resistance requirements of the test standard. "H" shall indicate that the glazing meets the hose stream requirements of the test standard. "NH" shall indicate that the glazing does not meet the hose stream requirements of the test. "T" shall indicate that the glazing meets the temperature requirements of Section 715.4.4.1. "NT" shall indicate that the glazing does not meet the temperature requirements of Section 715.4.4.1. The placeholder "XXX" shall specify the fire-protection-rating period, in minutes.~~

Reason: This proposal coordinates with proposed new Section 715.3, for classification of glazing as "R" for meeting fire-resistance and limited temperature rise criteria in accordance with ASTM E119, or "P" for fire-protection testing of fire endurance capabilities to NFPA 252 and 257. These designations are a simple way to distinguish between two products that are both tested and listed for use in 45-, 60- and 90-minute doors, sidelites and window assemblies, where one also meets the radiant heat and temperature rise criteria of ASTM E119. See Reason in support of new section 715.3.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: As written, this code change is related to and dependent on the approval of the proponent's code change FS103-06/07 which adds a new Section 715.3. Approval of this item without approval of the other code change would require modification.

Public Hearing: Committee AS AM D
Assembly: ASF AMF DF

FS118–06/07
715.4.6.4, 715.5.3 (New)

Proponent: William E. Koffel, P.E., Koffel Associates, Inc., representing Fire Rated Glazing Industry

1. Revise as follows:

715.4.6.4 Safety glazing. Fire-protection-rated glazing installed in fire doors ~~or fire window assemblies~~ in areas subject to human impact in hazardous locations shall comply with Chapter 24.

2. Add new text as follows:

715.5.3 Safety glazing. Fire-protection-rated glazing installed in fire window assemblies in areas subject to human impact in hazardous locations shall comply with Chapter 24.

(Renumber subsequent sections)

Reason: Section 715.4.6 applies to glazing in fire door assemblies and therefore the requirement for safety glazing in fire window assemblies in incorrectly included in Section 715.4.6.4. The proposal retains the requirement but adds a new section in the fire window section (715.5) to reference the appropriate safety glazing requirements.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS119–06/07
715.4.6.4

Proponent: William F. O'Keeffe, SAFTI FIRST

Revise as follows:

715.4.6.4 Safety glazing. Fire-protection-rated glazing installed in fire doors or fire window assemblies in areas subject to human impact ~~in hazardous locations~~ shall comply with Chapter 24 and shall be safety glazing where installed in hazardous locations as defined in Section 2406.3.

Reason: Clarify code. This code change will clarify the definition of hazardous locations.

As presently worded, "hazardous location" is referenced but the code does not indicate where you can find the definition of hazardous location. With this clarification, where to find the definition of hazardous location in the code is specified.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS120–06/07
715.5

Proponent: William F. O'Keeffe, SAFTI FIRST

Revise as follows:

715.5 Fire-protection-rated glazing. Glazing in fire window assemblies shall be fire-protection rated in accordance with this section and Table 715.5. Glazing in fire door assemblies shall comply with Section 715.4.6. Fire-protection-rated glazing shall be tested in accordance with and shall meet the acceptance criteria of NFPA 257. Fire-protection-rated glazing shall also comply with NFPA 80. Openings in nonfire-resistance-rated exterior wall assemblies that require protection in accordance with Section 704.3, 704.8, 704.9 or 704.10 shall have a fire-protection rating of ~~not less than~~ ¾ hour.

Exceptions:

1. Wired glass in accordance with Section 715.5.3.
2. Fire-protection-rated glazing in 0.5-hour fire-resistance-rated partitions is permitted to have an 0.33-hour fire-protection rating.

Reason: Clarify code. This code change defines the application of fire-protection-rated glazing in windows used for exterior application, not requiring fire resistance rated glazing, to be limited to a 45 minute rating.

The wording as it is now presented would indicate that a higher rating could be used. Any rating higher than 45 minutes creates additional hazards due to radiant heat and is the reason behind the change from fire protection to fire resistant glazing in applications one hour or over.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS121–06/07
715.5

Proponent: Wayne Carson, Carson Associates, Inc., representing SAFTFIRST

Revise as follows:

715.5 Fire-protection-rated glazing. Glazing in fire window assemblies shall be fire-protection rated in accordance with this section and Table 715.5. Glazing in fire door assemblies shall comply with Section 715.4.6. Fire-protection-rated glazing shall be tested in accordance with and shall meet the acceptance criteria of NFPA 257. Fire-protection-rated glazing shall also comply with NFPA 80. Openings in nonfire-resistance-rated exterior wall assemblies that require protection in accordance with Section 704.3, 704.8, 704.9 or 704.10 shall have a fire-protection rating of not less than 3/4 hour.

Exceptions:

1. Wired glass in accordance with Section 715.5.3.
2. Fire-protection-rated glazing in 0.5-hour fire-resistance-rated partitions is permitted to have an 0.33-hour fire-protection rating.
3. Glazing in 1 hour corridor walls constructed in accordance with Section 1017.1 shall be exempt from the hose stream test requirement.

Reason: The purpose of the proposed code change is to delete current requirements for hose stream test on corridor glazing. This code change will better align the code requirements for corridor walls and delete the inconsistency for protecting one opening (doors) from other openings (glazing) in the corridor wall.

The purpose of the corridor wall requirement was to protect the egress path from smoke and heat for the time it takes people to evacuate that floor. The one-hour wall requirement was used as a method to establish a quality of construction, a design and construction requirement that can be easily determined during plan review and inspections and not as a minimum absolute requirement of 1 hour fire resistance for protecting the corridor. The use of the 20 minute door establishes the intent of this code provision, it was not 1 hour fire resistance.

There is considerable inconsistency in the hose stream test requirement. For example, walls tested for less than one hour do not require the hose stream test, yet we test glazing over 20 minute rated.

The hose stream test is not applicable to the level of protection intended for corridors and is unnecessary. The European standards do not require the hose stream test for any glazing in fire rated construction including ISO 834-8:2002.

Cost Impact: The code change proposal will reduce the cost of construction by reducing the cost of acceptable glazing materials.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS122–06/07
Table 715.5

Proponent: William F. O'Keeffe, SAFTI FIRST

Revise table as follows:

Table 715.5
FIRE WINDOW ASSEMBLY FIRE PROTECTION RATINGS

TYPE OF ASSEMBLY	REQUIRED ASSEMBLY RATING (hours)	~~MINIMUM~~ FIRE WINDOW ASSEMBLY RATING (hours)
Interior walls:		
Fire walls	All	NP[a]
Fire barriers	>1	NP[a]
Smoke barriers	1	3/4
and fire partitions	1	3/4
Exterior Walls	>1	1 1/2[b]
	1	3/4
Party wall	All	NP

NP = Not Permitted

a. Not permitted except as specified in Section 715.2

b. Fire-resistance rated glazing

Reason: Clarify the code. This code change improves the requirement by clarifying the intent that 3/4 hour is the maximum fire-protection-rated glazing and anything above 3/4 hour is fire-resistance-rated glazing

The third column specifies “minimum”. Deleting “minimum” would better describe the intent that the rating shall be 3/4 hour. Footnote b is added to detail any rating above 3/4 hour would be fire-resistance-rated as compared to 3/4 hour which is fire-protection-rated.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS123–06/07
Table 715.5

Proponent: William F. O’Keeffe, SAFTI FIRST

Revise table as follows:

TABLE 715.5
FIRE WINDOW ASSEMBLY FIRE PROTECTION RATINGS

TYPE OF ASSEMBLY	REQUIRED ASSEMBLY RATING (hours)	~~MINIMUM~~ FIRE WINDOW ASSEMBLY RATING (hours)
Interior walls:		
Fire walls	All	NP[a]
Fire barriers	>1	NP[a]
Smoke barriers	1	3/4
and fire partitions	1	3/4
Exterior Walls	~~>1~~	~~1 1/2~~
	1	3/4
Party wall	All	NP

NP = Not Permitted
a. Not permitted except as specified in Section 715.2

Reason: Clarify the code. This code change improves the requirement by clarifying the intent that 3/4 hour is the maximum fire-protection-rated glazing and anything above 3/4 hour is fire-resistance-rated glazing. One and one-half hour ratings should not be included in a chart for fire protection rated glazing.
The third column specifies “minimum”. Deleting “minimum” would better describe the intent that the rating shall be 3/4 hour. The deletion of a fire protection glazing rating listing under the table of 1-1/2 hour that could lead to misuse and endanger safety benefits the public.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS124–06/07
Table 715.5

Proponent: William E. Koffel, P.E., Koffel Associates, Inc., representing Fire Rated Glazing Industry

Revise table as follows:

TABLE 715.5
FIRE WINDOW ASSEMBLY FIRE PROTECTION RATINGS

TYPE OF ASSEMBLY	REQUIRED ASSEMBLY RATING (hours)	MINIMUM FIRE WINDOW ASSEMBLY RATING (hours)
Interior walls:		
Fire walls	All	NPa
Fire barriers	> 1	NPa
Smoke barriers	1	¾
~~and~~ Fire partitions —— Fire partitions	1	¾
	1/2	1/3
Exterior walls	> 1	1½
	1	3/4
Party wall	All	NP

NP = Not Permitted.
a. Not permitted except as specified in Section 715.2.

Reason: Although Exception No. 2 to Section 715.5 states the requirement for fire protection rated glazing in fire partitions having a fire resistance rating of ½ hour, Table 715.5 is silent for such fire partitions. The proposal merely makes the Table consistent with the requirements in the exception.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS125–06/07
715.5.3, 715.5.3.1 (New), Table 715.5.3

Proponent: William E. Koffel, P.E., Koffel Associates, Inc., representing Fire Rated Glazing Industry

1. Revise as follows:

715.5.3 Wired glass. Steel window frame assemblies of 0.125-inch (3.2 mm) minimum solid section or of not less than nominal 0.048-inch-thick (1.2 mm) formed sheet steel members fabricated by pressing, mitering, riveting, interlocking or welding and having provision for glazing with 1/4-inch (6.4 mm) wired glass where securely installed in the building construction and glazed with 1/4-inch (6.4 mm) labeled wired glass shall be deemed to meet the requirements for a 3/4-hour fire window assembly. ~~Wired glass panels shall conform to the size limitations set forth in Table 715.5.3~~

715.3.1 Wired glass panels. Wired glass panels shall conform to the size limitations set forth in NFPA 80.

2. Delete table without substitution:

~~TABLE 715.5.3~~
~~LIMITING SIZES OF WIRED GLASS PANELS~~

~~OPENING FIRE PROTECTION RATING~~	~~MAXIMUM AREA square inches)~~	~~MAXIMUM HEIGHT (inches)~~	~~MAXIMUM WIDTH (inches)~~
~~3 hours~~	~~0~~	~~0~~	~~0~~
~~11/2-hour doors in exterior walls~~	~~0~~	~~0~~	~~0~~
~~1 and 11/2 hours~~	~~100~~	~~33~~	~~10~~
~~3/4 hour~~	~~1,296~~	~~54~~	~~54~~
~~20 minutes~~	~~Not Limited~~	~~Not Limited~~	~~Not Limited~~
~~Fire window assemblies~~	~~1,296~~	~~54~~	~~54~~

~~For SI: 1 inch = 25.4 mm, 1 square inch = 645.2 mm^2.~~

Reason: The provisions in Table 715.5.3 are not consistent with current listings of wired glass. NFPA 80 requirements more correctly state the permitted use of wired glass in assemblies required to have a fire protection rating. The proposed language is consistent with the language in Section 715.5.4 for nonwired glass. Creating a new section indicates that all wired glass panels must meet the size limitations in NFPA 80.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS126–06/07
715.5.7.2

Proponent: William F. O'Keeffe, SAFTI FIRST

Revise as follows:

715.5.7.2 Size limitations. The total area of windows shall not exceed 25 percent of the area of a common wall with any room due to radiant heat concerns as detailed in Appendix J of NFPA 80.

Reason: Clarify the code. This code change improves the requirement by referencing information that can support the AHJ interpretation of this requirement.

Radiant heat is a key safety characteristic in how it impacts occupants exiting past glazing and the non-piloted ignition of combustibles as discussed in NFPA 80 Appendix J.

The code can be improved by the specific reference to NFPA 80 Appendix J where users of this code can obtain information that is helpful to their understanding of this requirement.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS127–06/07
715.5.8, 715.8.1

Proponent: Kate Steel, Piedmont, CA, representing Fire & Safety Glazing Council

1. Revise as follows:

715.5.8 Labeling requirements. Fire-protection-rated and fire-resistance rated glazing shall bear a label or other identification showing the name of the manufacturer, the test standard and ~~information required in Section 715.5.8.1~~ the classification required in Section 715.3.3, that shall be issued by an approved agency and shall be permanently affixed to the glazing.

2. Delete without substitution:

~~**715.5.8.1 Identification.** For fire-protection-rated glazing, the label shall bear the following two-part identification: "OH – XXX." "OH" indicates that the glazing meets both the fire-resistance and the hose-stream requirements of NFPA 257 and is permitted to be used in openings. "XXX" represents the fire-protection rating period, in minutes, that was tested.~~

Reason: This proposal coordinates with proposed new Section 715.3, for classification of glazing as "R" for meeting fire-resistance and limited temperature rise criteria in accordance with ASTM E119, or "P" for fire-protection testing of fire endurance capabilities to NFPA 252 and 257. These designations are a simple way to distinguish between two products that are both tested and listed for use in 45-, 60- and 90-minute doors, sidelites and window assemblies, where one also meets the radiant heat and temperature rise criteria of ASTM E119. See Reason in support of new section 715.3.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: As written, this code change is related to and dependent on the approval of the proponent's code change FS103-06/07 which adds a new Section 715.3. Approval of this item without approval of the other code change would require modification.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS128–06/07
715.5.8.1

Proponent: William F. O'Keeffe, SAFTI FIRST

Revise as follows:

715.5.8.1 Identification. For fire-protection-rated glazing, the label shall bear the following two-part identification: "OH – XX~~X~~." "OH" indicates that the glazing meets both the fire-resistance and the hose-stream requirements of NFPA 257 and is permitted to be used in openings. "XX~~X~~" represents the fire-protection rating period, in minutes, that was tested.

Reason: Clarify code. This code change prevents fire rating durations not in compliance with the code
The present text designates minutes as "XXX" for fire-protection-rated glazing used in window opening applications. Fire protective window openings can be a maximum of two digits, usually typically 45 minutes per 715.5. The XXX will lead to possible labeling of fire protective glazing for window openings of 120 or 180 minutes which is not permitted.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS129–06/07
715.5.8.1

Proponent: William E. Koffel, P.E., Koffel Associates, Inc., representing Fire Rated Glazing Industry

Revise as follows:

715.5.8.1 Identification. For fire-protection-rated glazing, the label shall bear the following two-part identification: "OH – XXX." "OH" indicates that the glazing meets both the fire~~-resistance~~ protection and the hose-stream

requirements of NFPA 257 and is permitted to be used in openings. “XXX” represents the fire-protection rating period, in minutes, that was tested.

Reason: The current text incorrectly refers to the performance of such glazing as having a fire resistance performance when in fact it is a fire protection rating.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS130–06/07
716.3.2.1 (IMC 607.3.2.1)

Proponent: Vickie Lovell, Delray, FL, representing Air Movement and Control Association

Revise as follows:

716.3.2.1 (IMC 607.3.2.1) Smoke damper actuation methods. The smoke damper shall close upon actuation of a listed smoke detector or detectors installed in accordance with Section 907.10 and one of the following methods, as applicable:

1. Where a damper is installed within a duct, a smoke detector shall be installed in the duct within 5 feet (1524 mm) of the damper with no air outlets or inlets between the detector and the damper. The detector shall be listed for the air velocity, temperature and humidity anticipated at the point where it is installed. Other than in mechanical smoke control systems, dampers shall be closed upon fan shutdown where local smoke detectors require a minimum velocity to operate.
2. Where a damper is installed above smoke barrier doors in a smoke barrier, a spot-type detector listed for releasing service shall be installed on either side of the smoke barrier door opening.
3. Where a damper is installed within an ~~unducted~~ air transfer opening in a wall, a spot-type detector listed for releasing service shall be installed within 5 feet (1524 mm) horizontally of the damper.
4. Where a damper is installed in a corridor wall or ceiling, the damper shall be permitted to be controlled by a smoke detection system installed in the corridor.
5. Where a total-coverage smoke detector system is provided within areas served by a heating, ventilation and air-conditioning (HVAC) system, dampers shall be permitted to be controlled by the smoke detection system.

Reason: This is the only section in the 2006 IBC where the term “unducted opening” is used. It is presumed that this applies to a hole in the wall, and the more appropriate term is air transfer opening.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS131–06/07
716.5.2

Proponent: Tony Crimi, A.C., Consulting Solutions Inc., representing International Firestop Council

Revise as follows:

716.5.2 (IMC 607.5.2) Fire barriers. Ducts and air transfer openings that penetrate fire barriers shall be protected with listed fire dampers installed in accordance with their listing. Ducts and air transfer openings shall not penetrate exit enclosures and exit passageways except as permitted by Sections 1020.1.2 and 1021.5, respectively.

Exception: Fire dampers are not required at penetrations of fire barriers where any of the following apply:

1. Penetrations are tested in accordance with ASTM E119 as part of the fire-resistance rated assembly.
2. The duct is protected as a through penetration in accordance with Section 712.

~~2.~~ 3. Ducts are used as part of an approved smoke control system in accordance with Section 909 and where the use of a fire damper would interfere with the operation of a smoke control system.

~~3.~~ 4. Such walls are penetrated by ducted HVAC systems, have a required fire-resistance rating of 1 hour or less, are in areas of other than Group H and are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure’s HVAC system. Such a duct system shall be constructed of sheet steel not less than 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.

Reason: To assist Code users by adding a pointer in section 716.5.2 regarding the option of protecting penetrations around ducts and air transfer openings using the methods stipulated in Section 712.

This proposal is intended to clarify that the Code permits alternative means of penetration protection described in Section 712 to be used for protection around ducts and air transfer openings.

There are numerous Listed and Labeled through penetration firestop systems designed to accommodate penetration of ducts and air transfer openings through fire resistance rated fire barrier walls. Section 716.5.2 already permits ducts and air transfer openings to be protected by a system which is tested in accordance with ASTM E119 as part of the fire-resistance rated assembly. The Code has also recognized alternative means of penetration protection described in Section 712 for many years. Section 712.3.3 on ducts and air transfer openings already requires penetrations of fire-resistance-rated walls by ducts and air transfer openings that are not protected with fire dampers to comply with Section 712. This Code change proposals clarifies the requirements of the Code in 716.5.2.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS132–06/07
716.5.2 (IMC 607.5.2)

Proponent: Vickie Lovell, Delray, FL, representing Air Movement and Control Association

Revise as follows:

716.5.2 (IMC 607.5.2) Fire barriers. Ducts and air transfer openings of fire barriers shall be protected with approved fire and smoke dampers installed in accordance with their listing. Ducts and air transfer openings shall not penetrate exit enclosures and exit passageways except as permitted by Sections 1020.1.2 and 1021.5, respectively.

Exceptions:

1. Fire dampers are not required at penetrations of fire barriers where ~~any of the following apply: 1.~~ the penetrations are tested in accordance with ASTM E119 as part of the fire-resistance rated assembly.
2. Fire and smoke dampers are not required where ~~D~~ducts are used as part of an approved smoke control system in accordance with Section 909 and where the use of a fire or smoke damper would interfere with the operation of a smoke control system.
3. ~~Such walls are penetrated by ducted HVAC systems, have a required fire-resistance rating of 1 hour or less, are in areas of other than Group Hand are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.~~

Reason: This code change has been presented to the ICC membership in order to ascertain what level of safety we expect from fire barrier construction nationwide in sprinklered buildings and non-sprinklered buildings.

The addition of smoke dampers in addition to fire damper in fire barriers maintains the level of protection provided under the 1997 UBC. UBC Section 713.10 required smoke dampers in occupancy separations, horizontal exit walls and shaft enclosures which are now considered to be fire barriers in the Section 706 of the IBC.

It should also be noted that this proposed amendment would also apply to exit passageways, vertical exit enclosures, incidental use areas, and single occupancy fire areas based on IBC Section 706 Fire Barriers.

Exception 3 Elimination of this exception maintains the current level of protection as provided under the 1997 UBC. This deletion would be consistent with the use of, and exceptions to use of, fire dampers in UBC Section 713.11 since Exception 3 to Section 716.5.2 for the requirements for fire dampers did not exist in the current UBC Section 713.11.

However, the current IBC section 716.5.2 is based on the 1996 BOCA National Building Code, Section 714.1.5, which eliminated the fire damper in fire barriers altogether under certain conditions.

The 1997 SBCCI Standard Building Code required fire dampers in all partitions rated for 1 hour or more, but smoke dampers only in smoke barriers.

Regionally, there was justification for each philosophy pertaining to fire and smoke dampers based on other fire and smoke provisions contained in each code. However, a re-opening of the discussion is warranted since nearly the entire country is using the fire barrier assembly in the IBC to separate building uses and fire areas, protect the means of egress, and other vital functions for occupant safety and building protection.

To be consistent with last year's action in Section 506.3.10 of the *International Mechanical Code*. UL 2221 is the industry consensus developed standard for Grease Duct Enclosure System.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS133–06/07
716.5.3, (IMC 607.5.5)

Proponent: Ron Nickson, National Multi Housing Council/National Apartment Association

Revise as follows:

716.5.3 (IMC 607.5.5) Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with approved fire and smoke dampers installed in accordance with their listing.

Exceptions:

1. Fire dampers are not required at penetrations of shafts where:
   1.1. Steel exhaust subducts are extended at least 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside; or
   1.2. Penetrations are tested in accordance with ASTM E 119 as part of the rated assembly; or
   1.3. Ducts are used as part of an approved smoke control system designed and installed in accordance with Section 909 and where the fire damper will interfere with the operation of the smoke control system; or
   1.4. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
2. In Group B and R occupancies, equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, smoke dampers are not required at penetrations of shafts where:
   2.1. Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a wall thickness of at least 0.019 inch (0.48 mm); and
   2.2. That extend at least 22 inches (559 mm) vertically; and
   2.3. An exhaust fan is installed at the upper terminus of the shaft that is, powered continuously in accordance with the provisions of Section 909.11, so as to maintain a continuous upward airflow to the outside.

Reason: To make exception for the requirement for fire and smoke dampers for penetrations of kitchen, clothes dryer, bathroom and toilet room exhaust openings as now permitted for building protected with NFPA 13 sprinkler systems to also be permitted with the installation of a NFPA 13R sprinkler system. The design requirements for the NFPA 13R system for the room being protected provide the same level of protection as a NFPA 13 system. Additionally the requirement for smoke dampers is to control the spread of smoke throughout the building and issue that is not important for the exhaust dampers on kitchens, dryers, bathrooms and toilet rooms as they exhaust from individual rooms to the outside and are not connected to the HVAC system used to heat the entire building.

Cost Impact: The code change proposal will not increase the cost of construction. The code change will decrease the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS134–06/07
716.5.3 (IMC 607.5.5)

Proponent: Guy McMann, CBO, Jefferson County, Co., representing Colorado Association of Plumbing and Mechanical Officials (CAPMO)

Revise as follows:

716.5.3 (IMC 607.5.5) Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with approved fire and smoke dampers installed in accordance with their listing.

Exceptions:

1. Fire dampers are not required at penetrations of shafts where:
   1.1. Steel exhaust subducts are extended at least 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside; or
   1.2. Penetrations are tested in accordance with ASTME119 as part of the rated assembly; or
   1.3. Ducts are used as part of an approved smoke control system designed and installed in accordance with Section 909 and where the fire damper will interfere with the operation of the smoke control system; or
   1.4. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.

2. In Group B and R occupancies, equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, smoke dampers are not required at penetrations of shafts where:
   2.1. Kitchen, ~~clothes dryer,~~ bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a wall thickness of at least 0.019 inch (0.48 mm); and
   2.2. That extend at least 22 inches (559 mm) vertically; and
   2.3. An exhaust fan is installed at the upper terminus of the shaft that is, powered continuously in accordance with the provisions of Section 909.11, so as to maintain a continuous upward airflow to the outside.

Reason: Permitting a cloths dryer exhaust of any size and quantity to discharge as a sub-duct system is truly a poor design. First of all its' in direct conflict with IMC sections 504.1 and 504.4. Those sections state that dryer exhaust must convey moisture and any products of combustion, including lint products, to the outdoors. Nowhere in the code does it permit an indirect termination. Also the exception does not limit the amount of exhaust that can be terminated into a shaft or another duct. 504.4 also does not permit a dryer duct to pass through or in another duct. Consider the result of such a system. Lint will gather over all the other ducts in the shaft, at the bottom of the shaft and throughout the exhaust fan itself. It will also create a fire hazard as there will be little if any maintenance of a shaft. What effect will the moisture have on building materials? Dryer duct should exit the building directly, not indirectly. Also section 102.1 specifies that in a specific case, when different sections specify different methods, the most restrictive shall apply. It's simply not a good idea to include dryer exhaust in a sub-duct system!

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS135–06/07
716.5.3 (IMC 607.5.5)

Proponent: Michael Perrino, Code Consultants, Inc

Revise as follows:

716.5.3 (IMC 607.5.5) Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with approved fire and smoke dampers installed in accordance with their listing.

Exceptions:

1. Fire dampers are not required at penetrations of shafts where:
   1.1. Steel exhaust subducts are extended at least 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside; or
   1.2. Penetrations are tested in accordance with ASTME119 as part of the rated assembly; or
   1.3. Ducts are used as part of an approved smoke control system designed and installed in accordance with Section 909 and where the fire damper will interfere with the operation of the smoke control system; or
   1.4. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
2. In Group B and R occupancies, equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, smoke dampers are not required at penetrations of shafts where:
   2.1. ~~Kitchen, clothes dryer, b~~ Bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a wall thickness of at least 0.019 inch (0.48 mm); and
   2.2. That extend at least 22 inches (559 mm) vertically; and
   2.3. An exhaust fan is installed at the upper terminus of the shaft that is, powered continuously in accordance with the provisions of Section 909.11, so as to maintain a continuous upward airflow to the outside.
3. Smoke dampers are not required at penetration of exhaust or supply shafts in parking garages that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
4. Smoke dampers are not required at penetrations of shafts where ducts are used as part of an approved mechanical smoke control system designed in accordance with Section 909 and where the smoke damper will interfere with the operation of the smoke control system.
5. Fire dampers and combination fire/smoke dampers are not required in kitchen and clothes dryer exhaust system when installed in accordance with the *International Mechanical Code*.

Reason: (In regards to the IBC): To coordinate with IMC Sections 504.2 (last sentence) and with my proposed revision to the last sentence of IMC Section 506.3.10.

The IMC addresses protection for specific equipment and such protection should not be regulated by occupancy classification.

Sections 506.3.10 as proposed for change and 504.2 of the International Mechanical Code adequately address the materials, protection and installation of grease ducts and clothes dryer exhaust ducts based on the hazards associated with such systems. There is no reason to require additional occupancy specific protection to systems which function the same in any occupancy. The new exception adds the necessary information so that the reader is directed to the proper code requirements.

(In regards to the IMC): To coordinate with Section 506.3.10 last sentence (per the proposed code change) and Section 504.2 last sentence.

The last sentence of current section 506.3.10, Grease duct enclosure, provides duct enclosure requirements which states "The duct enclosure shall serve a single grease exhaust duct system and shall not contain any other ducts, piping, wiring, or systems."

The proposed code change to Section 607.5.5, Exception 2 is meant to coordinate with our companion change to Section 506.3.10, which will state "The duct enclosure shall serve a single grease exhaust duct system and shall not contain any other ducts, piping, wiring, fire dampers, combination fire/smoke dampers and any similar devices that will obstruct the exhaust flow."

Also the last sentence of current Section 504.2, Exhaust penetrations, states "Fire dampers, combination fire/smoke dampers and any similar devices that will obstruct the exhaust flow, shall be prohibited in clothes dryer exhaust ducts."

The provisions in Sections 506.3.10 and 504.2 are provided for the specific equipment and should not be regulated by occupancy classification.

Sections 506.3.10 as proposed for change and 504.2 of the International Mechanical Code adequately address the materials, protection and installation of grease ducts and clothes dryer exhaust ducts based on the hazards associated with such systems. There is no reason to require additional occupancy specific protection to systems which function the same in any occupancy.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS136–06/07
716.5.3, (IMC 607.5.5)

Proponent: Dave Frable, U.S. General Services Administration, representing U.S. General Services Administration

Revise as follows:

716.5.3 (IMC 607.5.5) Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with approved fire and smoke dampers installed in accordance with their listing.

Exceptions:

~~1. Fire dampers are not required at penetrations of shafts where:~~

~~2.~~ 1. Fire and smoke dampers are not required where steel exhaust subducts are extended at least 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside; or

~~3.~~ 2. Fire dampers are not required at penetrations where penetrations are tested in accordance with ASTM E119 as part of the fire-resistance rated assembly; or

~~4.~~ 3. Fire and smoke dampers are not required at penetrations of shafts where ducts are used as part of an approved smoke control system designed and installed in accordance with Section 909 and where the fire damper will interfere with the operation of the smoke control system; or

~~5.~~ 4. Fire and smoke dampers are not required at penetrations of shafts where the penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.

5. Smoke dampers are not required at penetrations of shafts where the building is protected throughout by an automatic sprinkler system designed and installed in accordance with Section 903.3.1, unless smoke dampers are used as part of an approved smoke control system in accordance with Section 909.

~~2. In Group B and R occupancies, equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, smoke dampers are not required at penetrations of shafts where:~~

~~2.1. Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a wall thickness of at least 0.019 inch (0.48 mm); and~~

~~2.2. That extend at least 22 inches (559 mm) vertically; and~~

~~2.3. An exhaust fan is installed at the upper terminus of the shaft that is, powered continuously in accordance with the provisions of Section 909.11, so as to maintain a continuous upward airflow to the outside.~~

~~3. Smoke dampers are not required at penetration of exhaust or supply shafts in parking garages that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.~~

~~4. Smoke dampers are not required at penetrations of shafts where ducts are used as part of an approved mechanical smoke control system designed in accordance with Section 909 and where the smoke damper will interfere with the operation of the smoke control system.~~

Reason: The purpose of the International Building Code is to provide minimum requirements to safeguard occupants of buildings from fire and other hazards attributed to the built environment. We believe this code proposal will reduce the number of smoke dampers currently required to in Section 7.16.5.3, while still providing a reasonable level of safety to the building occupants. We also believe that the information stated below clearly indicates why the current text is overly restrictive and needs to be revised.

The current requirements in Section 7.16.5.3 were developed in the comment phase of the development for the 2000 IBC. Prior to the 2000 IBC; no requirements existed in any of the legacy Codes to install smoke dampers in addition to fire dampers at ducts of shafts. The original justification for installing smoke dampers at ducts of shafts was that smoke would be able to travel through these openings to locations remote from the fire that would then obstruct the occupant's evacuation routes and threaten the safety of the building occupants. In addition, the original proposal made no allowances for deleting smoke dampers in shaft enclosures in buildings protected throughout with automatic sprinklers. Moreover, the original justification provided only qualitative description of the potential for smoke spread through ducts in buildings protected throughout by automatic

sprinklers, but did not provide any quantitative data (i.e., life loss due to smoke spread from a fire in sprinklered buildings) to support this major code change. In addition, other Sections within the IBC already require duct smoke detectors to shut off air handling equipment to minimize the potential smoke spread through the buildings HVAC system.

The presence of additional smoke dampers in buildings has a significant installation and recurring maintenance cost impact that doesn't appear to be necessary for life safety, given there is no documented life loss to smoke spread where occupant has not been intimate with the fire in a fully sprinklered building. It is estimated that the requirement for installing smoke dampers and other related equipment (e.g., additional duct smoke detectors, connections to the fire alarm system, interface with HVAC controls, etc.) costs between $1,500 to $3,000 per damper, and can be even more for larger dampers. Recurring annual inspection and testing requirements and inevitable maintenance and repairs will further increase the cost impact on building owners and operators.

Based on all the points stated above, we strongly believe that it is unreasonable to require smoke dampers to be installed at penetrations of shafts in buildings protected throughout by automatic sprinklers, without increasing the overall safety to the building occupants.

Cost Impact: The code change proposal will reduce the cost of construction and recurring inspection, testing and maintenance requirements.

Public Hearing:				
	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS137–06/07
716.5.3, (IMC 607.5.5)

Proponent: Raymond A. Grill, P.E., Arup Fire, representing himself, Washington, DC

Delete and substitute as follows:

716.5.3 (IMC 607.5.5) Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with approved fire and smoke dampers installed in accordance with their listing.

Exceptions:

~~1. Fire dampers are not required at penetrations of shafts where:~~
   ~~1.1. Steel exhaust subducts are extended at least 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside; or~~
   ~~1.2. Penetrations are tested in accordance with ASTME119 as part of the rated assembly; or~~
   ~~1.3. Ducts are used as part of an approved smoke control system designed and installed in accordance with Section 909 and where the fire damper will interfere with the operation of the smoke control system; or~~
   ~~1.4. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.~~
~~2. In Group B and R occupancies, equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, smoke dampers are not required at penetrations of shafts where:~~
   ~~2.1. Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a wall thickness of at least 0.019 inch (0.48 mm); and~~
   ~~2.2. That extend at least 22 inches (559 mm) vertically; and~~
   ~~2.3. An exhaust fan is installed at the upper terminus of the shaft that is, powered continuously in accordance with the provisions of Section 909.11, so as to maintain a continuous upward airflow to the outside.~~

1. Fire and smoke dampers are not required where steel exhaust subducts extend at least 22 inches (559 mm) vertically in exhaust shafts provided there is a continuous airflow upward to the outside.
2. Fire dampers are not required where penetrations are tested in accordance with ASTM E 119 as part of the fire-resistance rated assembly.
3. Fire and smoke dampers are not required where ducts are used as part of an approved smoke-control system in accordance with Section 909.
4. Fire and smoke dampers are not required where the penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance rated construction.
5. Smoke dampers are not required where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.

Reason: FS164-99 was the original code change to the International Building Code that required smoke dampers in addition to fire dampers at duct penetrations of shafts. This change was incorporated during the comment phase of the development of the first edition of the International Building Code.

This requirement did not exist in any of the model building codes (BOCA, UBC & SBC) or in NFPA 101 (Life Safety Code).

The justification for smoke dampers in the original code change is that smoke can travel through a duct to locations in a building that are remote from the fire. While this statement is correct, smoke travel through ducted ventilation shafts has not been a contributing factor to fire deaths in buildings in recent history. Smoke detectors at HVAC equipment have been a requirement to accomplish automatic shut off to minimize the potential of smoke spread through ventilation ducts. For example, the majority of fire deaths in upper stories of the MGM grand fire of 1980 were due to smoke spread through stair shafts and seismic joints that were not protected. Fancoil units in guestrooms drew air from the corridors which also contributed to fatalities. While the HVAC system was cited as a potential source of smoke spread, smoke detectors were not present to provide

automatic shutoff of equipment (NFPA Preliminary Report of the MGM Grand Hotel Fire). There was only one fatality in an upper story of the San Juan DuPont fire in 1986 which was not readily explained. Smoke travel through ventilation shafts was not a contributing factor in the First Interstate fire in Los Angeles or the Meridian fire in Philadelphia.

Even in the World Trade Center bombing of 1993, 6 fatalities were attributed to the explosion, but there were no fatalities due to the effects of smoke (Isner, Michael S. and Klem, Thomas J., "World Trade Center Explosion and Fire," National Fire Protection Association).

While these fires were thoroughly investigated, and code changes promulgated to address fire safety issues, smoke dampers in duct penetrations of shafts were never adopted as changes to any of the model codes as a result of these fires.

The original code change (FS164-99) did not present any technical substantiation for the additional requirement for smoke dampers at all penetrations of shafts. The comments submitted by Mr. Frable of the GSA and Mr. Perry of BOMA to the original proposal continue to be valid. In Mr. Frable's comment he stated, "In addition, no technical information or justification was provided on why the steel exhaust sub-duct exception, with continuous air-flow, is inadequate, and requires the addition of a smoke damper. The proponent fails to point out that the exceptions apply only to fire dampers, meaning that even where the exceptions are applied, a smoke damper is required." In Mr. Perry's comment to the original proposal, he states, "This proposal includes either an inadvertent oversight on behalf of the proponent, or an interesting new approach to exponentially expanding the market for smoke dampers. In either case, it should be disapproved." He concludes his comment with, "There was virtually no justification offered to substantiate the addition of smoke dampers to all shaft duct/air transfer opening penetrations, regardless of building size and height. There was none at all offered to essentially eliminate the exceptions which have been used in the model codes for years."

The 2003 addition of the IBC was modified so that smoke dampers are not required in toilet exhaust duct penetrations in fully sprinklered Group B Occupancy buildings only. While fire dampers can be eliminated if a steel subduct complying with the IBC is installed, a smoke damper would be required in all other occupancy types including hotels and apartment buildings.

Performance of Fully Sprinklered Buildings

It is important to note that the IBC requires sprinkler protection for most buildings of any significant size or occupant load (see section 903). Therefore, the performance of sprinklered buildings is relevant. There has never been a multiple life loss fire in a fully sprinkler building of any occupancy type where the occupants have not been intimate with the fire or where an explosive or terrorist event has occurred.

The original submitter of the code change in adding the additional smoke dampers does not question the reliability of sprinklers, he questions whether a 98% success factor is adequate to justify not having smoke dampers at duct penetrations and shafts. There were no fire incidents identified as part of the code change to demonstrate the need. The need for smoke dampers at ventilation shafts as a general requirement had never before been considered to be necessary to provide a reasonable level of life safety even in unsprinkler buildings.

Implications of the Requirement

The requirement for installation of smoke dampers drives additional features and requirements. These include a smoke detector in the duct to activate the damper which would be required to be supervised and connected to a fire alarm panel. HVAC controls and logic would be required to cause the appropriate damper operation upon smoke detector initiation. Ongoing maintenance and testing of the above devices is required on a regular frequency to assure operability.

Implementation of these requirements is not feasible in many instances. Smoke detectors in exhaust ducts from showers, dryers, kitchens, and other locations that produce aerosols or other materials that could trigger smoke detectors, are subject to unwanted alarms. Unwanted alarms on systems that are monitored off-site result in the fire department responding unnecessarily. This presents an added risk to firefighters.

A rough installed cost estimate for the smoke dampers and associated required equipment ranges from $1500-$3000 per damper or even more for large dampers. This does not include the ongoing cost of testing the dampers and detectors.

Some jurisdictions are granting modifications to the requirement for smoke dampers in exhaust ducts because it is impractical to comply with the code and there is no demonstrated need.

It should also be noted that the Commonwealth of Virginia has adopted this code change with their adoption of the 2003 edition of the IBC.

Cost Impact: The code change proposal will not increase the cost of construction. The proposed code change will reduce the cost of construction.

Public Hearing:				
	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS138–06/07

716.5.4 (IMC 607.5.3)

Proponent: Vickie Lovell, Delray, FL, representing Air Movement and Control Association and 3 M Company

Revise as follows:

716.5.4 (IMC 607.5.3) Fire partitions. Ducts and air transfer openings that penetrate fire partitions shall be protected with listed fire dampers installed in accordance with their listing.

Exceptions: In occupancies other than Group H, fire dampers are not required where any of the following apply:

1. The partitions are tenant separations ~~or corridor walls~~ in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, and the HVAC duct is protected as a through penetration in accordance with Section 712.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.
2. Tenant partitions in covered mall buildings where the walls are not required by provisions elsewhere in the code to extend to the underside of the floor or roof deck above.
3. The corridor wall is penetrated by a ducted HVAC system, and the corridor enclosure is permitted to be "0-hour" fire-resistance rated in accordance with Section 1017.1, the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, and the duct is protected as a through penetration in accordance with Section 712.3.1.2. For the purposes of this exception, a ducted

HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.

~~3~~. 4 The duct system is constructed of approved materials in accordance with the *International Mechanical Code* and the duct penetrating the ~~wall~~ fire partition complies with all of the following requirements:

~~3.1~~ 4.1. The duct shall not exceed 100 square inches (0.06 m^2).

~~3.2~~ 4.2. The duct shall be constructed of steel a minimum of 0.0217 inch (0.55 mm) in thickness.

~~3.3.~~ 4.3. The duct shall not have openings that communicate the corridor with adjacent spaces or rooms.

~~3.4~~ 4.4. The duct shall be installed above a ceiling.

~~3.5.~~ 4.5. The duct shall not terminate at a wall register in the fire-resistance-rated wall.

~~3.6.~~ 4.6. A minimum 12-inch-long (305 mm) by 0.060-inch-thick (1.52 mm) steel sleeve shall be centered in each duct opening. The sleeve shall be secured to both sides of the wall and all four sides of the sleeve with minimum 1½ -inch by 1½-inch by 0.060-inch (38 mm by 38 mm by 1.52 mm) steel retaining angles. The retaining angles shall be secured to the sleeve and the wall with No. 10 (M5) screws. The annular space between the steel sleeve and the wall opening shall be filled with mineral wool batting on all sides.

Reason: Section is crafted from1996 BOCA National Building Code Section 714.1.5 where fire damper exceptions originated. The original text permitted an exception for fire dampers in sprinklered buildings in both fire barriers and fire partitions for ducted HVAC systems when the steel ducts are continuous from the air handler without openings to adjacent spaces or areas to the air inlet/outlet terminal. It is likely that the same exception should apply to fire partitions, however, the IBC is not as clear as the NBC was as to whether the exception applies to fire partitions.

The 2003 IBC contains vital information on Exception #2 in 716.5.4 that the NBC did not contain regarding exceptions for fire dampers in corridors and tenant separations. Exception #2.2 of 714.1.5 in the NBC and Exception #2 in 716.5.4 of the IBC is based on a specififc fire test evaluated by an independent laboratory of a steel duct penetrating a fire partition using the very specific installation provisions outlined in the exception. Care must be taken and the authority having jurisdiction when approving the application of this exception, and by the technician installing the duct, to ensure that the duct is protected in accordance with all the minimum requirements outlined in exception #3 in the 2006 IBC.

The proposed changes more accurately reflect original provisions for eliminating dampers, plus proposal identifies code section as to how to protect ducts without dampers when exceptions apply. By separating the requirements for corridors and tenant separations, the conditions and the requirements are more clearly stated.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS139–06/07

716.5.6 (New) [IMC 607.5.6 (New)]

Proponent: Gregory R. Keith, Professional heuristic Development, representing The Boeing Company

Add new text as follows:

716.5.6 (IMC 607.5.6) Exterior walls. Ducts and air transfer openings in fire-resistance rated exterior walls in accordance with Section 704.14 shall be protected with listed fire dampers installed in accordance with their listing.

Reason: Although Section 704.14 contains very explicit requirements for protection of duct and air transfer openings in fire-resistance rated exterior walls required to have protected openings, the cross referenced Section 716 contains no duct and air transfer opening protection requirements specifically applicable to exterior walls. Section 716.5 provides general charging language while the following subsections state specific requirements for the various fire-resistance rated assemblies. This proposal provides necessary charging language in Section 716 that responds to the requirement in Section 704.14. A basic fire damper requirement consistent with the protection of exterior wall openings has been provided. It is recommended that this fundamental charging language be approved in this code development cycle. This will allow interested parties the opportunity to modify the technical requirement as they feel necessary. Approval of this proposal will provide necessary charging language that currently does not exist in the *International Building Code*.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS140–06/07

716.5.6 (New), 716.5, IMC 607.5.6 (New), IMC 607.5

Proponent: Gregory R. Keith, Professional heuristic Development, representing The Boeing Company

1. Add new text as follows:

716.5.6 (IMC 607.5.6) Smoke partitions. A listed smoke damper designed to resist the passage of smoke shall be provided at each point that an air transfer opening penetrates a smoke partition. Smoke dampers and smoke damper actuation methods shall comply with Section 716.3.2.1.

Exception: Smoke dampers are not required where the openings in ducts are limited to a single smoke compartment and the ducts are constructed of steel.

2. Revise as follows:

716.5 (IMC 607.5) Where required. Fire dampers, smoke dampers, combination fire/smoke dampers and ceiling radiation dampers shall be provided at the locations prescribed in Sections 716.5.1 through ~~716.5.5~~ 716.5.6. Where an assembly is required to have both fire dampers and smoke dampers, combination fire/smoke dampers or a fire damper and smoke damper shall be required.

Reason: Presently, Section 716.5 has no smoke damper charging language provisions specific to smoke partitions although Section 710.7 requires smoke dampers at air transfer openings. The language proposed for Section 716.5.6 is consistent with the technical requirements of Section 710.7. It is also consistent with the detailed installation requirements for smoke dampers in smoke barriers in accordance with Section 716.5.5. It is only reasonable that an exception to more stringent smoke barrier requirements should also apply to smoke partitions. Approval of this proposal will assist in the proper determination of smoke damper requirements in smoke partitions.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS141–06/07
716.6.2.1 (IMC 607.6.2.1)

Proponent: Randall R. Dahmen, P.E., Licensed Commercial Building Inspector, Waunakee, Wisconsin

Revise as follows:

716.6.2.1 (IMC 607.6.2.1) Ceiling radiation dampers. Ceiling radiation dampers shall be tested in accordance with UL 555C and installed in accordance with the manufacturer's installation instructions and listing. Ceiling radiation dampers are not required where either of the following applies:

1. Tests in accordance with ASTME119 have shown that ceiling radiation dampers are not necessary in order to maintain the fire-resistance rating of the assembly.
2. Where exhaust duct penetrations are protected in accordance with Section 712.4.1.2, are located within the cavity of a wall and do not pass through another dwelling unit, sleeping unit, or tenant space.

Reason: Section 708.1 references the need for fire partitions to separate dwelling units, sleeping units and tenant spaces. The intent of Section 716.6.2, Exception 2, appears to be for the same three occupancies, however the current wording leaves out "sleeping unit." The proposed wording would correct this omission in order to be consistent with Section 708.1. If the proposed change is not adopted, the current wording will continue to create two different levels of requirements between dwelling unit/tenant spaces versus that of sleeping units, which I believe is not the intent of this code section.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS142–06/07
716.6.2.1 (IMC 607.6.2.1)

Proponent: Vickie Lovell, representing Air Movement and Control Association

Revise as follows:

716.6.2.1 (IMC 607.6.2.1) Ceiling radiation dampers. Ceiling radiation dampers shall be tested either in accordance with UL 555C or as part of a fire-resistance rated floor-ceiling or roof/ceiling assembly in accordance with ASTM E 119. Ceiling radiation damper shall be and installed in accordance with the details listed in the fire-resistance-rated assembly and the manufacturer's installation instructions and the listing. Ceiling radiation dampers are not required where either of the following applies:

1. Tests in accordance with ASTM E 119 have shown that ceiling radiation dampers are not necessary in order to maintain the fire-resistance rating of the assembly.
2. Where exhaust duct penetrations are protected in accordance with Section 712.4.1.2, are located within the cavity of a wall and do not pass through another dwelling unit or tenant space.

Reason: Section 716.6.2.1 of the IBC currently specifies ceiling radiation dampers are to be evaluated in accordance with UL 555C. UL 555C describes a comparative fire test procedure whereby the fire performance of a candidate ceiling radiation damper is compared to the performance of the hinged door type damper specified in many fire-resistance-rated assemblies published in the UL Fire Resistance Directory. UL 555C requires the ceiling radiation damper to perform equal or better than the hinged door type damper. The resulting listing of the ceiling radiation damper specifies the limitations under which the ceiling radiation damper may be used in a fire-resistance-rated assembly in lieu of the hinged door type damper.

The purpose of this proposed code change is to provide an additional option for the evaluation of ceiling radiation dampers. Section 703 of the IBC requires the fire performance of horizontal fire-resistance-rated assemblies to be evaluated in accordance with ASTM E 119. However, current code language does not specifically permit the evaluation of a ceiling radiation damper as part of the horizontal fire-resistance-rated assembly. This proposal is intended to provide that option.

Sub-Section 1 under Section 716.6.2.1 already states ceiling radiation dampers are not required at all when tests conducted to ASTM E 119 have shown that ceiling radiation dampers are not necessary to maintain the fire-resistance rating of the assembly. This proposal is simply a variation of this same logic. If an assembly incorporating a ceiling radiation damper provides the required fire-resistance rating, then that ceiling radiation damper should be permitted in the specific fire-resistance-rated assembly.

When a ceiling radiation damper is evaluated as part of a fire-resistance-rated floor-ceiling or roof-ceiling assembly, the description of the tested fire-resistance-rated assembly will include a description of the ceiling radiation damper and its installation.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS143–06/07
716.6.2.1 (IMC 607.6.2.1), Chapter 35

Proponent: Bob Eugene, Underwriters Laboratories Inc.

1. Revise as follows:

716.6.2.1 (IMC 607.6.2.1) Ceiling radiation dampers. Ceiling radiation dampers shall be tested either in accordance with UL 555C or as part of a fire-resistance rated floor-ceiling or roof/ceiling assembly in accordance with ASTM E 119 or UL 263. ~~and~~ Ceiling radiation damper shall be installed in accordance with the details listed in the fire-resistance-rated assembly and the manufacturer's installation instructions and the listing. Ceiling radiation dampers are not required where either of the following applies:

1. Tests in accordance with ASTM E119 or UL 263 have shown that ceiling radiation dampers are not necessary in order to maintain the fire-resistance rating of the assembly.
2. Where exhaust duct penetrations are protected in accordance with Section 712.4.1.2, are located within the cavity of a wall and do not pass through another dwelling unit or tenant space.

2. Add standard to Chapter 35 as follows:

UL

263-03 Standard for Fire Test of Building Construction and Materials

Reason: The purpose of this proposed code change is to provide an additional option for the evaluation of ceiling radiation dampers.

Section 703 of the IBC requires the fire performance of horizontal fire-resistance-rated assemblies to be evaluated in accordance with ASTM E 119 or UL 263 (ASTM E 119 and UL 263 describe the same test method). However, current code language does not specifically permit the evaluation of a ceiling radiation damper as part of the horizontal fire-resistance-rated assembly. This proposal is intended to provide that option.

Section 716.6.2.1 of the IBC currently specifies ceiling radiation dampers are to be evaluated in accordance with UL 555C. UL 555C describes a comparative fire test procedure whereby the fire performance of a candidate ceiling radiation damper is compared to the performance of the hinged door type damper specified in many fire-resistance-rated assemblies published in the UL Fire Resistance Directory. UL 555C requires the ceiling radiation damper to perform equal or better than the hinged door type damper. The resulting listing of the ceiling radiation damper specifies the limitations under which the ceiling radiation damper may be used in a fire-resistance-rated assembly in lieu of the hinged door type damper.

Sub-Section 1 under Section 716.6.2.1 already states ceiling radiation dampers are not required at all when tests conducted to ASTM E 119 have shown that ceiling radiation dampers are not necessary to maintain the fire-resistance rating of the assembly. This proposal is simply a variation of this same logic. If an assembly incorporating a ceiling radiation damper provides the required fire-resistance rating, then that ceiling radiation damper should be permitted in the specific fire-resistance-rated assembly.

When a ceiling radiation damper is evaluated as part of a fire-resistance-rated floor-ceiling or roof-ceiling assembly, the description of the tested fire-resistance-rated assembly will include a description of the ceiling radiation damper and its installation.

ASTM E119 is the prescribed test for fire resistive assemblies. When duct outlets are included in the tested assembly, the duct outlet protective system in accordance with the tested assembly will be just as effective as one that uses a Listed ceiling radiation damper. UL 263 is an ANSI approved standard. Results of the review of the proposed standard(s) will be posted on the ICC website by August 20, 2006.

Bibliography: IBC Section 703

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS144–06/07
716.7 (IMC 607.7)

Proponent: Randall R. Dahmen, P.E., Licensed Commercial Building Inspector, Waunakee, Wisconsin

Revise as follows:

716.7 (IMC 607.7) Flexible ducts and air connectors. Flexible ducts and air connectors shall not pass through any fire- resistance-rated assembly. Flexible air connectors shall not pass through any wall, floor or ceiling. Passage shall not involve a penetration of a fire-resistance-rated ceiling/floor assembly, ceiling/roof assembly, or two vertical membranes by flexible duct and air connectors. In addition, there shall be no flexible duct or air connectors located between the ceiling membrane/floor assembly or two vertical membranes if the fire assembly does not allow for their use.

Reason: The word "through" as it is used in the current code wording could be read to imply penetration of a ceiling membrane and floor assembly or two vertical wall membranes OR it could be interpreted to imply placement of flexible duct located between the outer walls of a wall assembly or floor assemblies. Most professionals would agree with the first implication, however, there is controversy on the second since many contractors do use flexible duct in fire rated assemblies. However, there are listed fire assemblies that do not allow such use per their listing. This proposed change is to provide recognition that flexible duct located within the floor/ceiling assemblies or similar shall not violate the fire assembly listing.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS145–06/07
717.2.1; IRC R602.8.1

Proponent: Brian Scot Tollisen, P.E., New York Department of State Division of Code Enforcement and Administration

THIS PROPOSAL IS ON THE AGENDA OF THE IBC FIRE SAFETY AND THE IRC BUILDING/ENERGY CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IBC FIRE SAFETY

Revise as follows:

717.2.1 Fireblocking materials. Fireblocking or fill shall not be of any flammable material which can be shaped, fitted and permanently secured in position. Fireblocking shall consist of 2-inch (51 mm) nominal lumber or two thicknesses of 1-inch (25 mm) nominal lumber with broken lap joints or one thickness of 0.719-inch (18.3 mm) wood structural panel with joints backed by 0.719-inch (18.3 mm) wood structural panel or one thickness of 0.75-inch (19 mm) particleboard with joints backed by 0.75-inch (19 mm) particleboard. Gypsum board, cement fiber board, batts or blankets of mineral wool, glass fiber or other approved materials installed in such a manner as to be securely retained in place shall be permitted as an acceptable fireblock. Batts or blankets of mineral wool or glass fiber or other approved nonrigid materials shall be permitted for compliance with the 10-foot (3048 mm) horizontal fireblocking in walls constructed using parallel rows of studs or staggered studs. Loose-fill insulation material, insulating foam sealants and caulk materials shall not be used as a fireblock unless specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and to retard the spread of fire and hot gases. The integrity of fireblocks shall be maintained.

PART II – IRC BUILDING/ENERGY

Revise as follows:

R602.8.1 Materials. . Fireblocking or fill shall not be of any flammable material which can be shaped, fitted and permanently secured in position.Except as provided in Section R602.8, Item 4, fireblocking shall consist of 2-inch (51 mm) nominal lumber, or two thicknesses of 1-inch (25.4 mm) nominal lumber with broken lap joints, or one thickness of 23/32-inch (19.8 mm) wood structural panels with joints backed by 23/32-inch (19.8 mm) wood structural panels or one thickness of ¾-inch (19.1 mm) particleboard with joints backed by ¾-inch (19.1 mm) particleboard, ½-inch (12.7 mm) gypsum board, or ¼-inch (6.4 mm) cement-based millboard. Batts or blankets of mineral wool or glass fiber or other approved materials installed in such a manner as to be securely retained in place shall be permitted as an acceptable fire block. Batts or blankets of mineral or glass fiber or other approved nonrigid materials shall be permitted for compliance with the 10 foot horizontal fireblocking in walls constructed using parallel rows of studs or staggered studs.

Loose-fill insulation material, insulating foam sealants and caulk materials shall not be used as a fire block unless specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and to retard the spread of fire and hot gases.

Reason: (Part I) To ensure that flammable materials will not be allowed for use as fireblocking in combustible construction.

Currently, IBC Section 717.2.1, as written, appears to allow the use of flammable insulating foam sealants as a fireblocking material. Evaluation service legacy reports recognize flammable insulating foam sealant products as an alternative to the fireblocking materials prescribed in the IBC. The ability to use flammable materials as a fireblocking material does not appear to be consistent with the intent of the fireblocking requirements of the IBC as the materials specified in IBC Section 717.2.1 are not flammable.

IBC Section 717.2.1 requires the integrity of all fireblocks to be maintained. Breaching a fireblock assembly comprised of 2 inch nominal lumber with a conduit and sealing the remaining penetration opening with a flammable material is not consistent with the intent of the requirement to maintain the integrity of the fireblock.

A portion of IBC Section 717.2.1 states "Loose-fill insulation material shall not be used as a fire block unless specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and to retard the spread of fire and hot gases." It is unclear if the phrase "loose-fill insulation" applies to insulating foam sealants however it does not seem plausible that foam sealants could be considered an alternative to loose-fill insulation unless the material were proven to retard the spread of fire and hot gases.

(Part II) Currently, IRC Section 602.8 as written appears to allow the use of flammable insulating foam sealants as a fireblocking material. Evaluation service legacy reports recognize flammable insulating foam sealant products as an alternative to the fireblocking materials prescribed in the IRC. The ability to use flammable materials as a fireblocking material does not appear to be consistent with the intent of the fireblocking requirements of the IRC as the materials specified in IRC Section R602.8.1 are not flammable.

IRC Section R602.8.1.2 requires the integrity of all fireblocks to be maintained. Breaching a fireblock assembly comprised of 2 inch nominal lumber with a conduit and sealing the remaining penetration opening with a flammable material is not consistent with the intent of the requirement to maintain the integrity of the fireblock..

The last sentence in IRC Section R602.8.1 states "Loose-fill insulation material shall not be used as a fire block unless specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and to retard the spread of fire and hot gases." It is unclear if the phrase "loose-fill insulation" applies to insulating foam sealants however it does not seem plausible that foam sealants could be considered an alternative to loose-fill insulation unless the material were proven to retard the spread of fire and hot gases.

The language proposed above is consistent with the previous Uniform Code of New York State. For example:

1. Uniform Fire Prevention and Building Code, NYCRR 9B, Section 717.4 (b)(1) "Firestopping or fill shall be of nonflammable material which can be shaped, fitted and permanently secured in position.
2. Uniform Fire Prevention and Building Code, NYCRR 9B, Section 717.4(b)(4) "Flammable materials shall not be permitted as insulation or fill in concealed or attic spaces."

Cost: The code change proposal will not increase the cost of construction.

Analysis: Since the term "flammable material" is defined in Section 307.2, it is assumed that definition would be applicable to this proposed requirement.

PART I – IBC FIRE SAFETY

Public Hearing:	Committee	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IRC BUILDING/ENERGY

Public Hearing:	Committee	AS	AM	D
	Assembly:	ASF	AMF	DF

FS146–06/07

717.2.1, 717.2.1.1, 717.2.1.2 (New), 717.2.1.3, 717.2.1.4

Proponent: Lawrence Brown, CBO, National Association of Home Builders (NAHB)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC FIRE SAFETY AND THE IRC BUILDING/SAFETY CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IBC FIRE SAFETY

Revise as follows:

717.2.1 Fireblocking materials. Fireblocking shall consist of the following materials:

1. 2-inch (51 mm) nominal lumber~~, or~~
2. Two thicknesses of 1-inch (25 mm) nominal lumber with broken lap joints~~, or~~
3. One thickness of 0.719-inch (18.3 mm) wood structural panels with joints backed by 0.719-inch (18.3 mm) wood structural panels ~~or~~
4. One thickness of 0.75-inch (19.1 mm) particleboard with joints backed by 0.75-inch (19 mm) particleboard~~,~~
5. ½-inch (12.7 mm) Gypsum board~~, or~~
6. ¼-inch (6.4 mm) Cement-based millboard
7. Batts or blankets of mineral wool or glass fiber or other approved materials installed in such a manner as to be securely retained in place ~~shall be permitted as an acceptable fire block~~

717.2.1.1 Batts or blankets of mineral or glass fiber. Batts or blankets of mineral or glass fiber or other approved nonrigid materials shall be permitted for compliance with the 10-foot (3048 mm) horizontal fireblocking in walls constructed using parallel rows of studs or staggered studs.

717.2.1.2 Unfaced fiberglass. Unfaced fiberglass batt insulation used as fireblocking shall fill the entire cross section of the wall cavity to a minimum height of 16 inches (406 mm) measured vertically. When piping, conduit or similar obstructions are encountered, the insulation shall be packed tightly around the obstruction.

717.2.1.3 Loose-fill insulation material. Loose-fill insulation material shall not be used as a fireblock unless specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and to retard the spread of fire and hot gases.

717.2.1.4 Fireblocking integrity. The integrity of fireblocks shall be maintained.

PART II – IRC BUILDING/ENERGY

Revise as follows:

R602.8.1 Fireblocking materials. Except as provided in Section R602.8, Item 4, fireblocking shall consist of the following materials:

1. 2-inch (51 mm) nominal lumber~~, or~~
2. Two thicknesses of 1-inch (25.4 mm) nominal lumber with broken lap joints~~, or~~
3. One thickness of 23/32-inch (19.8 mm) wood structural panels with joints backed by 23/32-inch (19.8 mm) wood structural panels ~~or~~
4. One thickness of ¾-inch (19.1 mm) particleboard with joints backed by ¾-inch (19.1 mm) particleboard~~,~~
5. ½-inch (12.7 mm) gypsum board~~, or~~
6. ¼-inch (6.4 mm) cement-based millboard
7. Batts or blankets of mineral wool or glass fiber or other approved materials installed in such a manner as to be securely retained in place ~~shall be permitted as an acceptable fire block~~

R602.8.1.1 Batts or blankets of mineral or glass fiber. Batts or blankets of mineral or glass fiber or other approved nonrigid materials shall be permitted for compliance with the 10 foot horizontal fireblocking in walls constructed using parallel rows of studs or staggered studs.

R602.8.1.2 ~~1~~ Unfaced fiberglass. Unfaced fiberglass batt insulation used as fireblocking shall fill the entire cross section of the wall cavity to a minimum height of 16 inches (406 mm) measured vertically. When piping, conduit or similar obstructions are encountered, the insulation shall be packed tightly around the obstruction.

R602.8.1.3 Loose-fill insulation material. Loose-fill insulation material shall not be used as a fire block unless specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and to retard the spread of fire and hot gases.

R602.8.1.4 ~~2~~ Fireblocking integrity. The integrity of all fireblocks shall be maintained.

Reason: (IBC) This is primarily an editorial change. This proposal takes the 7 (seven) fireblocking materials, and the 3 (three) additional sub-provisions located in the current, very lengthy paragraph and separates them into a more user-friendly format. All of the new text (underlined) is the text of the IRC for this same provision, including the ½-inch dimension for gypsum board, and the ¼-inch dimension for Cement fiber board, that are an appropriate minimum thickness for these materials used as fireblocking. The new modifying provision for "unfaced fiberglass" (as an allowed fireblocking material in "(g)") is also from the IRC and provides the direction needed to install this material to be an effective fireblock. The text shown as stricken in "(g)" above is not needed – because, if the material is allowed as a fireblocking material it is already "acceptable". All other provisions remain unchanged.

Reason: (IRC) This is primarily an editorial change. This proposal takes the 7 (seven) fireblocking materials, and the 4 (four) sub-provisions located in the current, very lengthy paragraph and separates them into a more user-friendly format. The text shown as stricken in "(g)" above is not needed – because, if the material is allowed as a fireblocking material it is already "acceptable". All other provisions remain unchanged.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IBC FIRE SAFETY

Public Hearing:	Committee	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IRC BUILDING/ENERGY

Public Hearing:	Committee	AS	AM	D
	Assembly:	ASF	AMF	DF

FS147–06/07
719.1, 803.8 (New)

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

1. Revise as follows:

719.1 General. Insulating materials, including facings such as vapor retarders and vapor-permeable membranes, and similar coverings~~, and all layers of single and multilayer reflective foil insulations,~~ shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture, or other atmospheric conditions shall not be permitted.

Exceptions:

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the I*nternational Mechanical Code*.
4. All layers of single and multilayer reflective foil insulations shall comply with Chapter 8.

2. Add new text as follows:

803.8 Reflective Foil Insulations. Where used exposed, reflective foil insulations shall be tested in accordance with NFPA 286 in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of section 803.2.1.

(Renumber subsequent sections)

Reason: Recent work has shown that the traditional method of testing reflective insulation in the ASTM E 84 test (using chicken wire and rods) produces misleading results. Testing reflective insulation with the ASTM E 84 test suggests that the reflective insulation is safe and meets a flame spread index of 25 or less. In fact, when reflective insulation is tested in a more realistic way, with fasteners, the flame spread index jumps to over 200. A room corner test, NFPA 286, indicates that the reflective insulation does indeed cause rapid flashover (in less than 4 min, while the burner is still just at 40 kW and has not yet been raised to 160 kW). Therefore, reflective insulation needs to be tested using the room corner test, NFPA 286. If a mounting method that is suitable for testing reflective foil insulation in the ASTM E 84 test is developed, then it would be appropriate for the ASTM E 84 test with the corresponding mounting practice to be used for testing the materials.

Test results:
ASTM E 84 rods and chicken wire: Flame spread index under 25
ASTM E 84 fasteners: Flame spread index over 200
NFPA 286: Peak rate of heat release over 800 kW (before extinction), ceiling temperature over 600°C and flashover.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS148–06/07
719.4

Proponent: Rick Thornberry, P.E., The Code Consortium, Inc., representing Cellulose Insulation Manufacturers Association (CIMA)

Revise as follows:

719.4 Loose-fill insulation. Loose-fill insulation materials that cannot be mounted in the ASTM E 84 apparatus without a screen or artificial supports shall comply with the flame spread and smoke-developed limits of Sections 719.2 and 719.3 when tested in accordance with CAN/ULC S102.2.

Exception: Cellulose loose-fill insulation shall not be required to comply with ~~the flame spread index requirement of~~ CAN/ULC S102.2, provided such insulation complies with the requirements of Section 719.6.

Reason: This code change proposal deletes the requirement that cellulose loose-fill insulation be tested in accordance with CAN/ULC S102.2 for smoke-developed. It should be noted that testing cellulose loose-fill insulation per CAN/ULC S102.2 for flame spread is already preempted by federal regulations promulgated by the Consumer Product Safety Commission (CPSC). However, those regulations do not specifically preempt it

from being tested for smoke development. That is why the code currently requires cellulose loose-fill insulation to be tested per ASTM E84 for smoke developed. See the exceptions to Section 719.2 and 719.3.

CAN/ULC S102.2 was originally developed in Canada for testing attic insulation but it never caught on, primarily because of ASTM E970, the critical radiant flux test for attic floor insulation. ASTM E970 is required by both the IRC and IBC and it is specified throughout the world simply because it is a better test for attic insulation. Another major drawback to the CAN/ULC S102.2 test is that it requires major modifications to the ASTM E84 test apparatus. In fact, there are only a couple of Canadian laboratories that can do this test because they made the modifications but there are no US laboratories that can. Furthermore, a Health Canada Laboratories representative who conducts this test publicly stated it is "unreliable and inconsistent". And, the standard hasn't had a consensus revision in more than 18 years.

Several member companies of CIMA have conducted significant numbers of both the ASTM E84 and the CAN/ULC S102.2 tests on cellulose insulation at considerable expense and noted that they get virtually the same "smoke-developed" numbers from both tests. The cost to comply with the current requirement will likely run in the tens of thousands of dollars for the cellulose insulation industry. Thus, we believe there is no technical basis or benefit for testing cellulose loose-fill insulation to CAN/ULC for the sole purpose of obtaining a smoke developed number.

Finally, due to a lack of interest in Canada, CAN/ULC S102.2 has been earmarked by Health Canada for removal from the Canadian government's Product Safety Act.

For all of the above reasons, we respectfully urge the committee to approve this code change proposal which deletes the requirement for testing cellulose loose-fill insulation in accordance with CAN/ULC S102.2 to determine a smoke-developed number.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS149–06/07
Table 720.1(2)

Proponent: Sam Francis, American Forest & Paper Association

Revise table as follows:

1. Revise table as follows:

TABLE 720.1(2)
RATED FIRE-RESISTANCE PERIODS FOR VARIOUS WALLS AND PARTITIONS [a,o,p]

MATERIAL	ITEM NUMBER	CONSTRUCTION	MINIMUM FINISHED THICKNESS FACE-TO-FACE[b] (Inches)			
			4 hour	3 hour	2 hour	1 hour
15. Exterior or interior walls	15-1.12q	2″×6″wood studs at 16″with double top plates, single bottom plate; interior and exterior sides covered with 5/8 ″Type X gypsum wallboard, 4′wide, applied horizontally or vertically with vertical joints over studs, and fastened with 21/4 ″ Type S drywall screws, spaced 12″on center. Cavity to be filled with 5-1/2mineral wool insulation.	—	—	—	6¾
	~~15-1.16q~~	~~2″ × 4″ wood studs at 16″ with double top plates, single bottom plate; interior sides covered with 5/8 ″ Type X gypsum wallboard, 4′ wide, applied horizontally unblocked, and fastened with 21/4 ″ Type S drywall screws, spaced 12″ on center, wallboard joints covered with paper tape and joint compound, fastener heads covered with joint compound. Exterior covered with 3/8 ″ wood structural panels applied vertically, horizontal joints blocked and fastened with 6d common nails (bright) — 12″ on center in the field, 6″ on center panel edges. Cavity to be filled with 31/2 ″ mineral wool insulation. Rating established for exposure from interior side only.~~	~~—~~	~~—~~	~~—~~	~~4¼~~
	~~15-1.17~~ 15-1.16q	2″×6″wood studs at 24″centers with double top plates, single bottom plate; interior and exterior side covered with two layers of 5/8 ″ Type X gypsum wallboard, 4′wide, applied horizontally with vertical joints over studs. Base layer fastened with 21/4 ″ Type S drywall screws, spaced 24″on center, and face layer fastened with Type S drywall screws, spaced 8″on center, wallboard joints covered with paper tape and joint compound, fastened heads covered with joint compound. Cavity to be filled with 51/2 ″mineral wool insulation.	—	—	7¾	—
16. Exterior walls rated for fire resistance from the inside only in accordance with Section 704-5.	16-1.1q	2″ × 4″ wood studs at 16″ centers with double top plates, single bottom plate; interior side covered with 5/8 ″ Type X gypsum wallboard, 4′ wide, applied horizontally unblocked, and fastened with 2-1/4 ″ Type S drywall screws, spaced 12″ on center, wallboard joints covered with paper tape and joint compound, fastener heads covered with joint compound. Exterior covered with 3/8 ″ wood structural panels ~~(oriented strand board)~~, applied vertically, horizontal joints blocked and fastened with 6d common nails (bright) — 12″ on center in the field, and 6″ on center panel edges. Cavity to be filled with 3-1/2 ″ mineral wool insulation. Rating established for exposure from interior side only.	—	—	—	4½
	16-1.2q	2″× 6″ (51mm x 152 mm) wood studs at 16 ″ centers with double top plates, single bottom plate; interior side covered with 5/8 ″ Type X gypsum wallboard, 4′ wide, applied horizontally or vertically with vertical joints over studs and fastened with 21/4 ″ Type S drywall screws, spaced 12″ on center, wallboard joints covered with paper tape and joint compound, fastener heads covered with joint compound, exterior side covered with 7/16 ″ wood structural panels ~~(oriented strand board)~~ fastened with 6d common nails (bright) spaced 12″ on center in the field and 6″ on center along the panel edges. Cavity to be filled with 51/2 ″ mineral wool insulation. Rating established from the gypsum-covered side only.	—	—	—	$6^{9}/_{16}$
	16-1.3	2″×6″wood studs at 16″centers with double top plates, single bottom plates; interior side covered with 5/8 ″ Type X gypsum wallboard, ~~4″~~ 4′ wide, applied vertically with all joints over framing or blocking and fastened with 21/4 ″Type S drywall screws spaced 7″on center. Joints to be covered with tape and joint compound. Exterior covered with 3/8 ″wood structural panels ~~(oriented strand board)~~, applied vertically with edges over framing or blocking and fastened with 6d common nails (bright) at 12″on center in the field and 6″on center on panel edges. R-19 fiberglass insulation installed in stud cavity. Rating established from the gypsum-covered side only.	—	—	—	6½

(Portions of table not shown do not change.)

Reason: Item 1: (15-1.12q) This item was among several to be 'corrected' by the new definition of mineral wool. Instead, the printed code lacked the insulation requirement in its entirety. This will correct an editorial/printing error in the 2006 edition.

Item 2: (~~15-1.16q~~ & 16-1.1q) This item was 15-1.16 in the 2003 edition. In an AF&PA code change, a separate group, 16-x.xx was created for assemblies which are asymmetric (16 is for tested for exposure from the inside only which is a condition permitted by the IBC). In addition, a change last year was approved to delete the parenthetical notation of OSB. The purpose of this change is to correct the editorial/printing errors. Item 15-1.16 was moved in a previous code cycle to 16-1.1. It should have been deleted here. This will correct an editorial/printing error in the 2006 edition.

Item 3: (~~15-1.17~~ 15-1.16q) Incorrectly deleted in 2006 edition. No proposal ever took this action. It is intended to keep a two hour assembly in the code table. This will correct an editorial/printing error in the 2006 edition by restoring an item incorrectly deleted during the editing/printing of the 2006 edition.

Item 4: (16-1.2q) This item was moved in the same approved code change as the item above. In addition, a change last year was approved to delete the parenthetical notation of OSB. The purpose of this change is to correct the editorial/printing errors. This will correct an editorial/printing error in the 2006 edition.

Item 5: (16-1.3) This change will correct the editorial/printing errors in the 2006 edition. It also adds the last sentence, present in each of the other assemblies in 16-x.xx, which will require that the rating is asymmetric and is only established for the gypsum side of the assembly.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee AS AM D
Assembly: ASF AMF DF

FS150–06/07
Table 720.1(2)

Proponent: James Shriver, Thermafiber Inc.

Revise table as follows:

TABLE 720.1(2)
RATED FIRE-RESISTANCE PERIODS FOR VARIOUS WALLS AND PARTITIONS [a,o,p]

MATERIAL	ITEM NUMBER	CONSTRUCTION
15. Exterior or interior walls	15-1.13q	2″ x 6″ wood studs at 16″ with double top plates, single bottom plate; interior and exterior sides covered with 5/8″ Type X gypsum wallboard, 4′ wide, applied vertically with all joints over framing or blocking and fastened with 21/4″Type S drywall screws, spaced 12″ on center. R-19 ~~fiberglass~~ mineral fiber insulation installed in stud cavity.

(Portions of table not shown do not change)

Reason: Changing the language to mineral fiber will allow either fiberglass or mineral wool insulation in the stud cavity.

Mineral wool insulation is a well known and proven fire resistance material that has been tested, and approved numerous times for all types of fire resistive assemblies. In this type of a wall assembly, the Underwriters Laboratory Fire Resistance Directory lists mineral wool and fiberglass insulations as alternate materials in numerous design listings. Reference UL designs U305, U309, U311, U317, U327, U334, U338, U356 and U359. Specifically, U305 covers this design and lists the insulation as glass fiber or mineral wool with a rating of 1 hr. The same rating as listed in table 720.1(2) item number 15-1.13.

The UL Fire resistance directory also lists all of these designs as 2" x 4" wood studs versus this design with 2" x 6" wood studs. The UL Fire Resistive rating – ANSI/UL 263 (BXUV) design information section VI wall and partition assemblies states the size of the studs are minimum unless otherwise stated. . Therefore the referenced UL designs apply to 2" x 6" construction as well.

By changing the language to mineral fiber as defined in ASTM C168, Standard Terminology Relating to Thermal Insulation, both mineral wool and fiberglass insulation will be allowed in this wall assembly that has been tested and proven to be effective with either materials. Providing this construction with an alternate product also allows the end user more flexibility in their overall building needs.

Mineral wool has been tested in numerous assemblies as noted in the UL listed designs for wood studs – U305, U309, U311, U317 etc. There are also numerous examples in the metal studs listed designs U400 – 499. Specifically U305 is the same design as this construction (15-1.13). UL design listing U305 (attached), line item 5 Batt and Blankets, list glass fiber or mineral wool insulation in the assembly with the same hourly rating. Therefore using mineral wool as an alternant to fiberglass in this assembly will not effect the constructions hourly rating.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A copy of UL design number BXUV.U305 was submitted but has not been printed here.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS151–06/07
Table 720.1(2)

Proponent: Rick Thornberry, P.E., The Code Consortium, Inc., representing Western States Clay Products Association (WSCPA)

Revise table as follows:

TABLE 720.1(2)
RATED FIRE-RESISTANCE PERIODS FOR VARIOUS WALLS AND PARTITIONS[a,o,p]

MATERIAL	ITEM NUMBER	CONSTRUCTION	MINIMUM FINISHED THICKNESS FACE-TO-FACE[b] (inches)			
			4 hour	3 hour	2 hour	1 hour
15. Exterior or interior walls	15-2.1	3 5/8" No. 16 gage steel studs at 24" on center or 2" x 4" wood studs at 24" on center. Metal lath attached to the exterior side of studs with minimum 1" long No. 6 drywall screws at 6" on center and covered with minimum ¾" thick portland cement plaster. Thin veneer brick units of clay or shale complying with ASTM C1088, Grade TBS or better, installed in running bond in accordance with Section 1405.9. Combined total thickness of the portland cement plaster, mortar, and thin veneer brick units shall be not less than 1 ¾". Interior side covered with one layer of 5/8" thick Type X gypsum wallboard attached to studs with 1" long No. 6 drywall screws at 12" on center.				6
	15-2.2	3 5/8" No. 16 gage steel studs at 24" on center or 2" x 4" wood studs at 24" on center. Metal lath attached to the exterior side of studs with minimum 1" long No. 6 drywall screws at 6" on center and covered with minimum ¾" thick portland cement plaster. Thin veneer brick units of clay or shale complying with ASTM C1088, Grade TBS or better, installed in running bond in accordance with Section 1405.9. Combined total thickness of the portland cement plaster, mortar, and thin veneer brick units shall be not less than 2". Interior side covered with two layers of 5/8" thick Type X gypsum wallboard. Bottom layer attached to studs with 1" long No. 6 drywall screws at 24" on center. Top layer attached to studs with 1 5/8" long No. 6 drywall screws at 12" on center.			6 7/8	
	15-2.3	3 5/8" No. 16 gage steel studs at 16" on center or 2" x 4" wood studs at 16" on center. Where metal lath is used attach to the exterior side of studs with minimum 1" long No. 6 drywall screws at 6" on center. Brick units of clay or shale installed in accordance with Section 1405.5. Interior side covered with one layer of 5/8" thick Type X gypsum wallboard attached to studs with 1" long No. 6 drywall screws at 12" on center.				6 ¾
	15-2.4	3 5/8" No. 16 gage steel studs at 16" on center or 2" x 4" wood studs at 16" on center. Where metal lath is used attach to the exterior side of studs with minimum 1" long No. 6 drywall screws at 6" on center. Brick units of clay or shale installed in accordance with Section 1405.5. Interior side covered with two layers of 5/8" thick Type X gypsum wallboard. Bottom layer attached to studs with 1" long No. 6 drywall screws at 24" on center. Top layer attached to studs with 1 5/8" long No. 6 drywall screws at 12" on center.			7 7/8	

(Portions of table not shown do not change)

Reason: The purpose of this code change is to incorporate generic exterior/interior wall constructions into Table 720.1(2) for 1-hour and 2-hour walls constructed utilizing thin veneer brick units or brick units in conjunction with 5/8 inch thick Type X gypsum wallboard. These wall assemblies are currently contained in the ICBO Evaluation Service, Inc. Evaluation Report ER-5058. The basis for their evaluation and listing in the evaluation report as complying 1-hour and 2-hour fire-resistance rated exterior/interior wall assemblies is fire test data developed in 1993 by Walter Dickey, Consulting Engineer, who conducted a series of fire tests at Warnock Hersey at their fire testing lab in Pittsburg, CA.

We have reviewed the ICBO Evaluation Service, Inc. Evaluation Report, as well as the fire test data, to verify that it will demonstrate compliance with the 2006 International Building Code (IBC). The result is the text contained in the proposed revisions to Table 720.1(2) for the various wall assemblies of 1-hour and 2-hour fire-resistance ratings utilizing either thin veneer brick units or standard brick units attached as adhered veneer or anchored veneer. Copies of the Evaluation Service Report and the fire test reports are available upon request.

Cost Impact: This proposal will not increase the cost of construction.

Analysis: To view or download copies of ICBO Evaluation Service, Inc. Evaluation Report ER-5058 go to http://www.icc-es.org and then select the "Evaluation Reports" link in the left margin.

Public Hearing: Committee AS AM D
Assembly: ASF AMF DF

FS152–06/07
Table 720.1(2)

Proponent: Shriver, Thermafiber Inc.

Revise table as follows:

TABLE 720.1(2)
RATED FIRE-RESISTANCE PERIODS FOR VARIOUS WALLS AND PARTITIONS [a,o,p]

MATERIAL	ITEM NUMBER	CONSTRUCTION
16. Exterior walls rated for fire resistance from the inside only in accordance with Section 704.5.	16-1.3	2″ × 6″ wood studs at 16″ centers with double top plates, single bottom plates; interior side covered with 5/8″ Type X gypsum wallboard, 4″ wide, applied vertically with all joints over framing or blocking and fastened with 21/4″ Type S drywall screws spaced 7″ on center. Joints to be covered with tape and joint compound. Exterior covered with 3/8″ wood structural panels (oriented strand board), applied vertically with edges over framing or blocking and fastened with 6d common nails (bright) at 12″ on center in the field and 6″ on center on panel edges. R-19 ~~fiberglass~~ mineral fiber insulation installed in stud cavity.

(Portions of table not shown do not change)

Reason: Changing the language to mineral fiber will allow either fiberglass or mineral wool insulation in the stud cavity.

Mineral wool insulation is a well known and proven fire resistance material that has been tested, and approved numerous times for all types of fire resistive assemblies. In this type of a wall assembly, the Underwriters Laboratory Fire Resistance Directory lists mineral wool and fiberglass insulations as alternate materials in numerous design listings. Reference UL designs U305, U309, U311, U317, U327, U334, U338, U356 and U359. Specifically, U356 covers this design and lists the insulation as glass fiber or mineral wool with a rating of 1 hr. The same rating as listed in table 720.1(2) item number 16-1.3.

The UL Fire resistance directory also lists all of these designs as 2" x 4" wood studs versus this design with 2" x 6" wood studs. The UL Fire Resistive rating – ANSI/UL 263 (BXUV) design information section VI wall and partition assemblies states the size of the studs are minimum unless otherwise stated. Therefore the referenced UL designs apply to 2" x 6" construction as well.

By changing the language to mineral fiber as defined in ASTM C168, Standard Terminology Relating to Thermal Insulation, both mineral wool and fiberglass insulation will be allowed in this wall assembly that has been tested and proven to be effective with either materials. Providing this construction with an alternate product also allows the end user more flexibility in their overall building needs.

Mineral wool has been tested in numerous assemblies as noted in the UL listed designs for wood studs – U305, U309, U311, U317 etc. There are also numerous examples in the metal studs listed designs U400 – 499. Specifically U356 is the same design as this construction (16-1.3). UL design listing U356 (attached), line item 4 Batt and Blankets, list glass fiber or mineral wool insulation in the assembly with the same hourly rating. Therefore using mineral wool as an alternant to fiberglass in this assembly will not effect the constructions hourly rating.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: A copy of UL design BXUV.U356 was submitted but has not been printed here.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS153–06/07
721.1, 721.6, 721.6.1, 721.6.1.1

Proponent: Sam Francis, American Forest & Paper Association

Revise as follows:

721.1 General. The provisions of this section contain procedures by which the fire resistance of specific materials or combinations of materials is established by calculations. These procedures apply only to the information contained in this section and shall not be otherwise used. The calculated fire resistance of concrete, concrete masonry, and clay masonry assemblies shall be permitted in accordance with ACI 216.1/TMS 0216. The calculated fire resistance of steel assemblies shall be permitted in accordance with Chapter 5 of ASCE 29. The calculated fire resistance of exposed wood members and wood decking shall be permitted in accordance with Chapter 16 of ANSI/AF&PA *National Design Specification for Wood Construction (NDS) ©.*

721.6 Wood assemblies. The provisions of this section contain procedures by which the fire-resistance ratings of wood assemblies are established by calculations.

721.6.1 General. This section contains procedures for calculating the fire-resistance ratings of walls, floor/ceiling and roof/ceiling assemblies based in part on the standard method of testing referenced in Section 703.2.

721.6.1.1 Maximum fire-resistance rating. ~~Fire-resistance ratings calculated using the procedures in this section shall be used only for 1-hour rated assemblies.~~ Fire resistance ratings calculated for assemblies using the methods in Section 721.6 shall be limited to a maximum of 1 hour.

Reason: This section is being revised to include reference to the most recent consensus standards for wood structural design for fire resistance. The document referenced in this proposal, the AF&PA NDS, is currently referenced in the IBC. The proposed revision is intended to make it clear that Chapter 16 of the NDS is a separate methodology developed under ANSI procedures in a consensus process. It is a mechanics-based procedure with fire science underpinnings. The procedures previously published by AF&PA and transcribed in Section 721.6 are derived from work by Lei and by NRC. This procedure is developed using work by White, Sumathipala and others.

This methodology affords the designer a way to develop a fire resistance of up to 2 hours at full design load. The calculation procedure accounts for the effects of increasing cross-section to provide increased fire resistance ensuring that sufficient unaffected section remains to resist the loads. This method uses engineering mechanics rather than the empirical calculations found in the current IBC text (Section 721.6). Because the method is soundly based in research, has a mechanics basis, and was developed using a national consensus process, the reference is placed in the general paragraph with the other material standards. Furthermore, the fire resistance calculation procedures in the reference are not limited to 1 hour.

The revision to Section 721.6.1.1 is an editorial change. The sentence was reordered to clearly indicate that 1 hr. fire resistance rating limits of this section only apply to provisions of Section 721.6.

The supporting information for the addition of these design provisions in the NDS, an ANSI consensus standard, are contained in AF&PA *Technical Report 10: Calculating the Fire Resistance of Exposed Wood Members* available as a free download at www.awc.org/pdf/tr10.pdf.

Bibliography:
NDS
TR10

Cost Impact: This proposal offers a new calculation methodology to address numerous design issues previously unavailable using the provisions of Section 721.6. More options traditionally have reduced costs by allowing the most appropriate and effective strategy to be applied to a problem.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS154–06/07
721.4.1.1.1

Proponent: Charles Clark, Brick Industry Association (BIA), representing Masonry Alliance for Codes and Standards (MACS)

Revise as follows:

721.4.1.1.1 Hollow clay units. The equivalent thickness, *Te*, shall be the value obtained for hollow clay units as determined in accordance with Equation 7-8. The net volume, *Vn*, of the units shall be determined using the gross volume and percentage of void area determined in accordance with ASTM C 67.

Reason: To clarify that the equivalent thickness of hollow clay units must be calculated according to Equation 7-8 using the gross volume and percentage of void area determined according to ASTM C 67.

The existing provision 721.4.1.1.1 directs the user to determine the equivalent thickness in accordance with ASTM C 67. However, this standard contains no method to calculate equivalent thickness, which should be determined using Equation 7-8 for equivalent thickness. Rather, the gross volume and percentage of void area from ASTM C 67 should be used to determine the net volume of the hollow clay units. This code change clarifies these issues.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS155–06/07
721.5, 721.5.1 (New), 1915.5

Proponent: Susan Lamont, PhD, Arup Fire

1. Add new text as follows:

721.5 Steel assemblies. The provisions of this section contain procedures by which the fire-resistance ratings of steel assemblies are established by calculations. The fire resistance of steel assemblies can be determined by using either Section 721.5.1 or Sections 721.5.2 and 721.5.3.

721.5.1 Steel assemblies. The fire resistance of a structural element can be calculated by taking into consideration the reduction in strength and stiffness of the relevant material properties at high temperature in comparison with the load expected to be carried by the member in a fire. The load applied to the members in fire should be reduced in

comparison with that assumed for ambient design as agreed with the building official. Where members are over designed for the ambient load case this can be expected to result in an increase in failure temperature or reduced level of passive fire protection. The calculation can be carried out using the standard time-temperature curve or an agreed set of design basis fires taking into account credible fire load and where required, compartment dimensions, properties of wall linings and unprotected openings. The design fires and load combination at the fire limit state would need to be agreed with the building official.

(Renumber existing sections and their subsections as follows)

~~721.5.1~~ 721.5.2 Structural steel columns.

~~721.5.2~~ 721.5.3 Structural steel beams and girders.

2. Revise as follows:

1915.5 Fire-resistance-rating protection. Pipe columns shall be of such size or so protected as to develop the required fire-resistance ratings specified in Table 601 or as calculated in accordance with Section 721. Where an outer steel shell is used to enclose the fire-resistant covering, the shell shall not be included in the calculations for strength of the column section. The minimum diameter of pipe columns shall be 4 inches (102 mm) except that in structures of Type V construction not exceeding three stories or 40 feet (12 192 mm) in height, pipe columns used in the basement and as secondary steel members shall have a minimum diameter of 3 inches (76 mm).

Reason: The purpose of the code change is to include new text such that performance based design of structural steel members can be proposed on projects.

The code change would allow engineers to consider the behavior and capacity of single steel elements in the standard fire or in design basis fires. It would allow a reduction in passive fire protection on steel members which are over designed for load at ambient by utilizing the extra capacity in fire. In addition the change would allow engineers to consider a credible design fire in lieu of the standard fire where the fire load in a real building may be significantly different than the standard fire assumes.

The calculation method proposed in Section 721 also applies to steel columns filled with concrete because the approach simply considers the strength of the member relative to the load it carries and is material independent hence the change proposed to Section 1915.5 also.

Currently the code considers the ratio of heated perimeter to weight and ignores the strength/stiffness of the member at high temperatures compared with the load it has to carry. It also only considers the standard fire exposure which is generally not representative of many real fires with respect to peak temperature and duration.

The proposal is an enhancement to the current provisions because it allows engineers to design a structural member to have inherent fire resistance which can be a more robust approach to achieving a fire resistance rating than total reliance on additional passive fire protection.
I.e. a heavy steel section with little or no fire proofing is more robust than a light steel section heavily protected with fire proofing.

Passive fire protection is not a robust material when compared to other materials we rely on to support load. It needs to be maintained for the life of a building and will get usually damaged during fit outs, etc and is often not repaired. Moreover passive fire protection is not always easy to apply or effective when applied to structural steel members such as rods or cables. This code change provides engineers with an alternative approach allowing greater innovation in design.

The current guidance is overly restrictive for areas in buildings with low fire loads and structural members which are over designed. Consequently the current code requirements could in some cases lead to higher construction costs than are necessarily required.

Architects and their clients would benefit from the change because unprotected steel is often seen as aesthetically pleasing but is difficult to achieve within the current code requirements.

This proposal will allow a performance based approach and alternative solutions on a case by case basis whilst ensuring building officials can approve each project on its own merits.

This relatively simple single element analysis is already standardized and used readily elsewhere in the world. US researchers have also published evidence which supports this approach and methodology.

There is significant technical information available in the research domain and codes and standard world wide. In particular a significant number of loaded fire resistance tests were carried out in the UK in the late 1990s to show that where members are over designed their failure temperature is generally higher than the traditional 550C. However, these tests also highlighted that for compression members such as columns the failure temperature could be less than 550C. This is not recognized by furnace testing of unloaded members and could lead to non-conservative results which would be addressed by performance based design. These tests have resulted in the “Load Ratio” concept being implemented in the steel standard BS 5950 Part 8 in the UK and a similar approach in Eurocode 3 in Europe. The concept provides tabulated failure temperatures for different steel members dependent on the capacity of the section in relation to the load it carries.

It is proposed here that failure temperatures can be calculated by considering the load, failure mechanism and the strength and stiffness of the constituent materials at elevated temperature. The SFPE handbook of fire protection provides the necessary information on material properties for steel and guidance on similar analytical and empirical approaches to calculating the critical temperature of steel members.

Bibliography:

BS EN 1991-1-2:2002 Eurocode 1: Actions on structures — Part 1-2: General actions — Actions on structures exposed to fire, British Standards Institution.
BS EN 1993-1-2:2005 Eurocode 3: Design of steel structures — Part 1-2: General rules — Structural fire design, British Standards Institution.
BS5950:Part 8:1990 Code of practice for fire resistant design.
Buchanan, A.H, Structural Design for Fire Safety, Wiley, 2001:
Ellingwood and Corotis ,“Load Combinations for Buildings Exposed to Fires”, AISC Engineering Journal, 1991 Q1.
Milke J.A. Analytical methods for determining the fire resistance of steel members, Chapter 4-9, SFPE handbook of fire protection engineering, 3rd Edition, 2002.
Pettersson O., Magnusson S.E. and Thor J. (1976), “Fire Engineering design of steel structures”, Swedish Institute of Steel Construction.

Cost Impact: The code change proposal will not increase the cost of construction and in some cases may reduce costs if passive fire protection can be reduced or removed because the structural member has sufficient inherent capacity to support the load in fire.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS156–06/07
721.5.1.3, Figure 721.5.1(5), 721.5.1.3.2, 721.5.2.2, 721.5.2.3, 1702.1

Proponent: Philip Brazil, P.E, Reid Middleton, Inc., representing himself

THIS PROPOSAL IS ON THE AGENDA OF THE IBC FIRE SAFETY AND THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IBC FIRE SAFETY

Revise as follows:

721.5.1.3 ~~Spray-applied~~ Sprayed fire-resistant materials. The fire resistance of wide-flange structural steel columns protected with ~~spray-applied~~ sprayed fire-resistant materials, as illustrated in Figure 721.5.1(5), shall be permitted to be determined from the following expression:

$$R = [C_1 (W/D) + C_2] h \qquad \textbf{(Equation 7-13)}$$

Where:

R	=	Fire resistance (minutes).
h	=	Thickness of ~~spray-applied~~ sprayed fire-resistant material (inches).
D	=	Heated perimeter of the structural steel column (inches).
C_1 and C_2	=	Material-dependent constants.
W	=	Weight of structural steel columns (pounds per linear foot).

The fire resistance of structural steel columns protected with intumescent or mastic fire-resistant coatings shall be determined on the basis of fire-resistance tests in accordance with Section 703.2.

FIGURE 721.5.1(5)
WIDE FLANGE STRUCTURAL STEEL COLUMNS WITH
~~SPRAY-APPLIED~~ SPRAYED FIRE-RESISTANT MATERIALS

[No additional changes to Figure 721.5.1(5)]

721.5.1.3.2 ~~Spray-applied~~ Identification. ~~Spray applied~~ Sprayed fire-resistant materials shall be identified by density and thickness required for a given fire-resistance rating.

721.5.2.2 ~~Spray-applied~~ Sprayed fire-resistant materials. The provisions in this section apply to structural steel beams and girders protected with ~~spray applied~~ sprayed fire-resistant materials. Larger or smaller beam and girder shapes shall be permitted to be substituted for beams specified in approved unrestrained or restrained fire-resistance-rated assemblies, provided that the thickness of the fire-resistant material is adjusted in accordance with the following expression:

$$h_2 = h_1 [(W_1/D_1) + 0.60] / [W_2/D_2) + 0.60] \qquad \textbf{(Equation 7-17)}$$

where:

h	=	Thickness of ~~spray-applied~~ sprayed fire-resistant material in inches.
W	=	Weight of the structural steel beam or girder in pounds per linear foot.
D	=	Heated perimeter of the structural steel beam in inches.

Subscript 1 refers to the beam and fire-resistant material thickness in the approved assembly.
Subscript 2 refers to the substitute beam or girder and the required thickness of fire-resistant material.

The fire resistance of structural steel beams and girders protected with intumescent or mastic fire-resistant coatings shall be determined on the basis of fire-resistance tests in accordance with Section 703.2.

721.5.2.3 Structural steel trusses. The fire resistance of structural steel trusses protected with fire-resistant materials ~~spray-applied~~ sprayed to each of the individual truss elements shall be permitted to be determined in accordance with this section. The thickness of the fire-resistant material shall be determined in accordance with Section 721.5.1.3. The weight-to-heated-perimeter ratio (W/D) of truss elements that can be simultaneously exposed to fire on all sides shall be determined on the same basis as columns, as specified in Section 721.5.1.1. The weight-to-heated-perimeter ratio (W/D) of truss elements that directly support floor or roof construction shall be determined on the same basis as beams and girders, as specified in Section 721.5.2.1.

The fire resistance of structural steel trusses protected with intumescent or mastic fire-resistant coatings shall be determined on the basis of fire-resistance tests in accordance with Section 703.2.

PART II – IBC STRUCTURAL

Revise definition as follows:

1702.1 General. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

SPRAYED FIRE-RESISTANT MATERIALS. Cementitious or fibrous materials that are ~~spray-applied~~ sprayed to provide fire-resistant protection of the substrates.

Reason: The purpose for the proposal is editorial: to use the term "sprayed fire-resistant material" consistently throughout the IBC. Currently, "spray-applied fire-resistant material" is also used in places. All instances of the latter term in the IBC are included in this proposal. Use of the term "sprayed fire-resistant material" is currently found in IBC Sections 603.1 (21), 1702.1 ('sprayed fire-resistant material"), and 1704.10 through 1704.10.5.2.

The proposal will also align the IBC with the ASTM standards applicable to sprayed fire-resistant materials. ASTM E 605 and E 736 are referenced standards of the IBC. ASTM E 759, E 760 and E 761 also apply to sprayed fire-resistant materials. All of these standards consistently refer to the materials as "sprayed" materials.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IBC FIRE SAFETY

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IBC STRUCTURAL

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

FS157–06/07
803.1, 803.2, 803.5

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Revise as follows:

803.1 General. Interior wall and ceiling finishes shall be classified in accordance with ASTM E 84. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indexes.

Class A: Flame spread index 0-25; smoke-developed index 0-450.
Class B: Flame spread index 26-75; smoke-developed index 0-450.
Class C: Flame spread index 76-200; smoke-developed index 0-450.

Exception: Materials~~, other than textiles,~~ tested in accordance with Section 803.2.

803.2. Interior wall or ceiling finishes ~~other than textiles~~. Interior wall or ceiling finishes~~, other than textiles,~~ shall be permitted to be tested in accordance with NFPA 286. Finishes tested in accordance with NFPA 286 shall comply with Section 803.2.1.

803.5 Interior finish requirements based on group. Interior wall and ceiling finish shall have a flame spread index not greater than that specified in Table 803.5 for the group and location designated. Interior wall and ceiling finish materials~~, other than textiles,~~ tested in accordance with NFPA 286 and meeting the acceptance criteria of Section 803.2.1, shall be permitted to be used where a Class A classification in accordance with ASTM E 84 is required.

Reason: Section 803.6.3, as modified in the last cycle, permits textile wall and ceiling coverings to be tested in accordance with NFPA 286. Therefore the clause referring to "other than textiles" in the exception to 803.1, in the text and title of 803.2 and in 803.5, now creates an unnecessary conflict. Eliminating the clause "other than textiles" eliminates the conflict. This proposal does not provide new requirements since testing of textile wall and ceiling coverings by NFPA 286 is allowed but not required.

This proposal also replaces the nouns "flame spread" and "smoke developed" by "flame spread index" and "smoke developed index", since that is the correct terminology used in ASTM E 84.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee"	AS	AM	D
	Assembly:	ASF	AMF	DF

FS158–06/07
803.2

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Revise as follows:

803.2. Interior wall or ceiling finishes ~~other than textiles~~. Interior wall or ceiling finishes~~, other than textiles,~~ shall be permitted to be tested in accordance with NFPA 286. Finishes tested in accordance with NFPA286 shall comply with Section 803.2.1.

Reason: Section 803.6.3, as modified in the last cycle, permits textile wall coverings to be tested in accordance with NFPA 286. Therefore this clause in the text and title of 803.2 now creates an unnecessary conflict.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS159–06/07
716.5.2 (IMC 607.5.2)

Proponent: Vickie Lovell, Delray, FL, representing Air Movement and Control Association

Revise as follows:

716.5.2 (IMC 607.5.2) Fire barriers. Ducts and air transfer openings of fire barriers shall be protected with approved fire and smoke dampers installed in accordance with their listing. Ducts and air transfer openings shall not penetrate exit enclosures and exit passageways except as permitted by Sections 1020.1.2 and 1021.5, respectively.

Exceptions:

1. Fire dampers are not required at penetrations of fire barriers where ~~any of the following apply: 1.~~ the penetrations are tested in accordance with ASTM E119 as part of the fire-resistance rated assembly.
2. Fire and smoke dampers are not required where ~~D~~ducts are used as part of an approved smoke control system in accordance with Section 909 and where the use of a fire or smoke damper would interfere with the operation of a smoke control system.
3. ~~Such walls are penetrated by ducted HVAC systems, have a required fire resistance rating of 1 hour or less, are in areas of other than Group Hand are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.~~

Reason: This code change has been presented to the ICC membership in order to ascertain what level of safety we expect from fire barrier construction nationwide in sprinklered buildings and non-sprinklered buildings.

The addition of smoke dampers in addition to fire damper in fire barriers maintains the level of protection provided under the 1997 UBC. UBC Section 713.10 required smoke dampers in occupancy separations, horizontal exit walls and shaft enclosures which are now considered to be fire barriers in the Section 706 of the IBC.

It should also be noted that this proposed amendment would also apply to exit passageways, vertical exit enclosures, incidental use areas, and single occupancy fire areas based on IBC Section 706 Fire Barriers.

Exception 3 Elimination of this exception maintains the current level of protection as provided under the 1997 UBC. This deletion would be consistent with the use of, and exceptions to use of, fire dampers in UBC Section 713.11 since Exception 3 to Section 716.5.2 for the requirements for fire dampers did not exist in the current UBC Section 713.11.

However, the current IBC section 716.5.2 is based on the 1996 BOCA National Building Code, Section 714.1.5, which eliminated the fire damper in fire barriers altogether under certain conditions.

The 1997 SBCCI Standard Building Code required fire dampers in all partitions rated for 1 hour or more, but smoke dampers only in smoke barriers.

Regionally, there was justification for each philosophy pertaining to fire and smoke dampers based on other fire and smoke provisions contained in each code. However, a re-opening of the discussion is warranted since nearly the entire country is using the fire barrier assembly in the IBC to separate building uses and fire areas, protect the means of egress, and other vital functions for occupant safety and building protection.

To be consistent with last year's action in Section 506.3.10 of the *International Mechanical Code*. UL 2221 is the industry consensus developed standard for Grease Duct Enclosure System.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS160–06/07

801.1, 801.2 (New), 801.3 (New), 801.1.1, 801.1.2, 801.1.3, 801.2, 801.2.1, 801.2.2, 803.1, 803.1.1, 803.2, 803.2.1,803.1.3 (New), 803.1.3.1 (New), 803.1.4 (New), 803.2 (New), 803.3 (New), 803.4 (New), 803.5 (New), 803.6 (New), 803.7 (New), 803.8 (New)

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Revise as follows:

801.1 Scope. Provisions of this chapter shall govern the use of materials used as interior finishes, trim and decorative materials.

801.2 Interior wall and ceiling finish. The provisions of 803 shall limit the allowable fire performance and smoke development of interior wall and ceiling finish materials based on occupancy classification.

801.3 Interior floor finish. The provisions of 804 shall limit the allowable fire performance of interior floor finish materials based on occupancy classification

~~**801.1.1 Interior finishes.** These provisions shall limit the allowable flame spread and smoke development based on location and occupancy classification.~~

~~**Exceptions:**~~

1. ~~Materials having a thickness less than 0.036 inch (0.9 mm) applied directly to the surface of walls or ceilings.~~
2. ~~Exposed portions of structural members complying with the requirements for buildings of Type IV construction in Section 602.4 shall not be subject to interior finish requirements.~~

[F] ~~**801.1.2**~~ **801.4 Decorative materials and trim.** Decorative materials and trim shall be restricted by combustibility and flame resistance in accordance with Section 806.

~~**801.1.3**~~ **801.5 Applicability.** For buildings in flood hazard areas as established in Section 1612.3, interior finishes, trim and decorative materials below the design flood elevation shall be flood-damage-resistant materials.

~~**801.2**~~ **801.6 Application.** Combustible materials shall be permitted to be used as finish for walls, ceilings, floors and other interior surfaces of buildings.

~~**801.2.1**~~ **801.7 Windows.** Show windows in the first story of buildings shall be permitted to be of wood or of unprotected metal framing.

~~**801.2.2**~~ **801.8 Foam plastics.** Foam plastics shall not be used as interior finish ~~or trim~~ except as provided in Section 803.4. Foam plastics shall not be used as interior trim except as provided in Section 806.3 or Section 2604.2 ~~2603.9 or 2604~~. This section shall apply both to exposed foam plastics and to foam plastics used in conjunction with a textile or vinyl facing or cover.

SECTION 802: (No change to current text)

SECTION 803
WALL AND CEILING FINISHES

803.1 General. Interior wall and ceiling finish materials shall be classified for fire performance and smoke development in accordance with 803.1.1 or 803.1.2, except as shown in 803.2 through 803.8. Materials tested in accordance with 803.1.2 shall not be required to be tested in accordance with 803.1.1.

803.1.1 Interior wall and ceiling finish materials. Interior wall and ceiling finish materials ~~finishes~~ shall be classified in accordance with ASTM E 84. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indexes.

Class A: Flame spread index 0-25; smoke-developed index 0-450.
Class B: Flame spread index 26-75; smoke-developed index 0-450.
Class C: Flame spread index 76-200; smoke-developed index 0-450.

Exception: Materials~~, other than textiles~~, tested in accordance with Section 803.1.2 ~~803.2~~.

~~803.2~~ 803.1.2 . Room corner test for interior ~~Interior~~ wall or ceiling finish materials ~~finishes other than textiles~~. Interior wall or ceiling finish materials ~~finishes, other than textiles~~, shall be permitted to be tested in accordance with NFPA 286. Interior wall or ceiling finish materials ~~Finishes~~ tested in accordance with NFPA 286 shall comply with Section ~~803.2.1~~ 803.1.2.1.

~~803.2.1~~ 803.1.2.1 Acceptance criteria for NFPA 286. During the 40 kW exposure, the interior finish shall comply with Item 1. During the 160 kW exposure, the interior finish shall comply with Item 2. During the entire test, the interior finish shall comply with Items 3 and 4.

1. During the 40kW exposure, flames shall not spread to the ceiling.
2. During the 160 kW exposure, the interior finish shall comply with the following:
   2.1. Flame shall not spread to the outer extremity of the sample on any wall or ceiling.
   2.2. Flashover, as defined in NFPA 286, shall not occur.
3. The peak rate of heat release throughout the NFPA 286 test shall not exceed 800 kW.
4. The total smoke released throughout the NFPA 286 test shall not exceed 1,000 m^2.

803.1.3 Room corner test for textile wall coverings and expanded vinyl wall coverings. Textile wall coverings and expanded vinyl wall coverings shall meet the criteria of Section 803.1.3.1 when tested in the manner intended for use in accordance with the Method B protocol of NFPA 265 using the product mounting system, including adhesive.

803.1.3.1 Acceptance criteria for NFPA 265. During the 40 kW exposure the interior finish shall comply with item 1. During the 150 kW exposure, the interior finish shall comply with item 2. During the entire test, the interior finish shall comply with item 3.

1. During the 40 kW exposure, flames shall not spread to the ceiling.
2. During the 150 kW exposure, the interior finish shall comply with the following:
   2.1. Flame shall not spread to the outer extremities of the samples on the 8-foot by 12-foot (203 mm by 305 mm) walls.
   2.2. Flashover, as described in NFPA 265, shall not occur.
3. The total smoke released throughout the NFPA 265 test shall not exceed 1,000 m^2.

803.1.4 Acceptance criteria for textile and expanded vinyl wall or ceiling coverings tested to ASTM E 84. Textile wall and ceiling coverings and expanded wall and ceiling coverings shall have a Class A flame spread index in accordance with ASTM E 84 and be protected by automatic sprinklers installed in accordance with Section 903.3.1.1 or 903.3.1.2.

803.2 Thickness exemption Materials having a thickness less than 0.036 inch (0.9 mm) applied directly to the surface of walls or ceilings shall not be required to be tested.

803.3 Heavy time exemption. Exposed portions of structural members complying with the requirements for buildings of Type IV construction in Section 602.4 shall not be subject to interior finish requirements.

803.4 Foam plastics. Foam plastics shall not be used as interior finish except as provided in Section 2603.9. This section shall apply both to exposed foam plastics and to foam plastics used in conjunction with a textile or vinyl facing or cover. Foam plastics shall be permitted to be tested in accordance with Section 803.1.2, in the manner intended for use, and meet the criteria of 803.1.2.1.

803.5 Textile wall Coverings. Where used as interior wall finish materials, textile wall coverings, including materials having woven or nonwoven, napped, tufted, looped or similar surface and carpet and similar textile materials, shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of section 803.1.2, 803.1.3 or 803.1.4.

803.6 Textile ceiling coverings. Where used as interior ceiling finish materials, textile ceiling coverings, including materials having woven or nonwoven, napped, tufted, looped or similar surface and carpet and similar textile materials, shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of section 803.1.2 or 803.1.4.

803.7 Expanded vinyl wall coverings. Where used as interior wall finish materials, expanded vinyl wall coverings shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of section 803.1.2, 803.1.3 or 803.1.4.

803.8 Expanded vinyl ceiling coverings. Where used as interior ceiling finish materials, expanded vinyl ceiling coverings shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of section 803.1.2, or 803.1.4.

(Delete and relocate to 803.10; See below)
803.3 Stability. Interior finish materials regulated by this chapter shall be applied or otherwise fastened in such a manner that such materials will not readily become detached where subjected to room temperatures of 200°F (93°C) for not less than 30 minutes.

(Delete and relocate to 803.11; See below)
803.4Application. Where these materials are applied on walls, ceilings or structural elements required to have a fire-resistance rating or to be of noncombustible construction, they shall comply with the provisions of this section.

(Delete and relocate to 803.11.1; See below)
803.4.1 Direct attachment and furred construction. Where walls and ceilings are required by any provision in this code to be of fire resistance rated or noncombustible construction, the interior finish material shall be applied directly against such construction or to furring strips not exceeding 1.75 inches (44 mm) applied directly against such surfaces. The intervening spaces between such furring strips shall be filled with inorganic or Class A material or shall be fireblocked at a maximum of 8 feet (2438 mm) in any direction in accordance with Section 717.

(Delete and relocate to 803.11.2; See below)
803.4.2 Set-out construction. Where walls and ceilings are required to be of fire resistance rated or noncombustible construction and walls are set out or ceilings are dropped distances greater than specified in Section 803.4.1, Class A finish materials shall be used except where interior finish materials are protected on both sides by an automatic sprinkler system or attached to noncombustible backing or furring strips installed as specified in Section 803.4.1. The hangers and assembly members of such dropped ceilings that are below the main ceiling line shall be of noncombustible materials, except that in Type III and V construction, fire-retardant-treated wood shall be permitted. The construction of each set out wall shall be of fire resistance rated construction as required elsewhere in this code.

(Delete and relocate to 803.11.3; See below)
803.4.3 Heavy timber construction. Wall and ceiling finishes of all classes as permitted in this chapter that are installed directly against the wood decking or planking of Type IV construction or to wood furring strips applied directly to the wood decking or planking shall be fireblocked as specified in Section 803.4.1.

(Delete and relocate to 803.11.4; See below)
803.4.4 Materials. An interior wall or ceiling finish that is not more than 0.25 inch (6.4 mm) thick shall be applied directly against a noncombustible backing.

Exceptions:

1. Class A materials.
2. Materials where the qualifying tests were made with the material suspended or furred out from the noncombustible backing.

803.5 **803.9 Interior finish requirements based on group.** Interior wall and ceiling finish shall have a flame spread index not greater than that specified in Table 803.9 **803.5** for the group and location designated. Interior wall and ceiling finish materials **, other than textiles,** tested in accordance with NFPA 286 and meeting the acceptance criteria of Section 803.1.2.1 **803.2.1**, shall be permitted to be used where a Class A classification in accordance with ASTM E 84 is required.

(Renumber Table 803.5 as Table 803.9 without any other changes)

803.6Textiles. Where used as interior wall or ceiling finish materials, textiles, including materials having woven or nonwoven, napped, tufted, looped or similar surface and carpet and similar textile materials, shall comply with the requirements of section 803.6.1, 803.6.2 or 803.6.3.

803.6.1 Surface Burning Characteristic Test. Textile wall and ceiling coverings shall have a Class A flame spread index in accordance with ASTM E 84 and be protected by automatic sprinklers installed in accordance with Section 903.3.1.1 or 903.3.1.2.

803.6.2 Room corner test, textiles. Textile wall coverings shall meet the criteria of Section 803.6.2.1 when tested in the manner intended for use in accordance with the Method B protocol of NFPA 265 using the product mounting system, including adhesive.

803.6.2.1 Method B test protocol. During the 40 kW exposure the interior finish shall comply with item 1. During the 150 kW exposure, the interior finish shall comply with item 2. During the entire test, the interior finish shall comply with item 3.

~~1. During the 40 kW exposure, flames shall not spread to the ceiling.~~
~~2. During the 150 kW exposure, the interior finish shall comply with the following:~~
~~2.1. Flame shall not spread to the outer extremities of the samples on the 8 foot by 12 foot (203 mm by 305 mm) walls.~~
~~2.2. Flashover, as described in NFPA 265, shall not occur.~~
~~3. The total smoke released throughout the NFPA 265 test shall not exceed 1,000 m^2.~~

~~**803.6.3 Room corner test, ceiling and wall finish.** Textile wall and ceiling coverings shall meet the criteria of 803.2.1 when tested in the manner intended for use in accordance with NFPA 286 using the product mounting system, including adhesive.~~

~~**803.7 Expanded vinyl wall coverings.** Expanded vinyl wall coverings shall comply with the requirements for textile wall and ceiling materials and their use shall comply with Section 803.5.~~

~~**Exception:** Expanded vinyl wall or ceiling coverings complying with Section 803.2 shall not be required to comply with Section 803.1 or 803.5.~~

~~**803.3**~~ **803.10 Stability.** Interior finish materials regulated by this chapter shall be applied or otherwise fastened in such a manner that such materials will not readily become detached where subjected to room temperatures of 200°F (93°C) for not less than 30 minutes.

~~**803.4**~~ **803.11 Application of interior finish materials to fire-resistance rated structural elements.** Where ~~these~~ interior finish materials are applied on walls, ceilings or structural elements required to have a fire-resistance rating or to be of noncombustible construction, they shall comply with the provisions of this section.

~~**803.4.1**~~ **803.11.1 Direct attachment and furred construction.**
Where walls and ceilings are required by any provision in this code to be of fire-resistance-rated or noncombustible construction, the interior finish material shall be applied directly against such construction or to furring strips not exceeding 1.75 inches (44 mm) applied directly against such surfaces. The intervening spaces between such furring strips shall comply with one of the following:

1. be filled with material that is inorganic or non combustible, 2. be filled with material that meets the requirements of a ~~or~~ Class A material in accordance with Section 803.1.1 or 803.1.2 or
3. ~~shall~~ be fireblocked at a maximum of 8 feet (2438 mm) in any direction in accordance with Section 717.

~~**803.4.2**~~ **803.11.2 Set-out construction.** Where walls and ceilings are required to be of fire-resistance-rated or noncombustible construction and walls are set out or ceilings are dropped distances greater than specified in Section 803.11.1 ~~803.4.1~~, Class A finish materials, in accordance with Section 803.1.1 or 803.1.2, shall be used except where interior finish materials are protected on both sides by an automatic sprinkler system or attached to noncombustible backing or furring strips installed as specified in Section 803.11.1 ~~803.4.1~~. The hangers and assembly members of such dropped ceilings that are below the main ceiling line shall be of noncombustible materials, except that in Type III and V construction, fire-retardant-treated wood shall be permitted. The construction of each set-out wall shall be of fire-resistance-rated construction as required elsewhere in this code.

~~**803.4.3**~~ **803.11.3 Heavy timber construction.** Wall and ceiling finishes of all classes as permitted in this chapter that are installed directly against the wood decking or planking of Type IV construction or to wood furring strips applied directly to the wood decking or planking shall be fireblocked as specified in Section ~~803.4.1~~ 803.11.1.

~~**803.4.4**~~ **803.11.4 Materials.** An interior wall or ceiling finish that is not more than 0.25 inch (6.4 mm) thick shall be applied directly against a noncombustible backing.

Exceptions:

1. Class A materials, in accordance with Section 803.1.1 or 803.1.2.
2. Materials where the qualifying tests were made with the material suspended or furred out from the noncombustible backing.

SECTION 804 (No change to current text)

SECTION 805: (No change to current text)

SECTION 806: (No change to current text)

~~**803.8**~~ **807 Insulation.** Thermal and acoustical insulation shall comply with Section 719.

~~803.9~~ 808 **Acoustical ceiling systems.** The quality, design, fabrication and erection of metal suspension systems for acoustical tile and lay-in panel ceilings in buildings or structures shall conform with generally accepted engineering practice, the provisions of this chapter and other applicable requirements of this code.

~~803.9.1~~ 808.1 **Materials and installation.** Acoustical materials complying with the interior finish requirements of Section 803 shall be installed in accordance with the manufacturer's recommendations and applicable provisions for applying interior finish.

~~803.9.1.1~~ 808.1.1 **Suspended acoustical ceilings.** Suspended acoustical ceiling systems shall be installed in accordance with the provisions of ASTM C 635 and ASTM C 636.

~~803.9.1.2~~ 808.1.2 **Fire-resistance-rated construction.** Acoustical ceiling systems that are part of fire-resistance-rated construction shall be installed in the same manner used in the assembly tested and shall comply with the provisions of Chapter 7.

Reason: This proposal makes no changes to any requirements but reorganizes the sections so as to create a more logical sequence and to avoid confusion. The rewrite shows all three tests used for interior wall and ceiling finish materials, and their criteria (ASTM E 84, NFPA 286 and NFPA 265). These are in 803.1.1, 803.1.2 and 803.1.3, while 803.1.4 shows the requirements for sprinklers when textile or vinyl coverings are tested via ASTM E 84. Sections 803.2 through 803.8 set out the requirements for all interior finish materials that are tested differently from the norm. The section on stability has been moved to appear after all of the fire test requirements, followed by the sections on application of interior finish to fire resistance-rated structural elements. The sections on insulation and acoustical ceiling systems have been moved to the end of the chapter. The proposal makes it clear that everywhere that a Class A material is required, a material that has passed NFPA 286 (per 803.1.2.1) is also permitted.

The proposal also eliminates a contradiction in the code, because there are several areas where the code at present says "other than textiles" when referring to NFPA 286. These sections are: the exception in 803.1, section 803.2 and section 803.5. However, sections 803.6 and 803.6.3 already permit textiles to be tested with NFPA 286. Therefore, the proposal just cleans up a problem without changing requirements.
The following chart will help track the reformatting done by this code change proposal.

2006 IBC	Code Change for 2009 IBC
Section 801 General	
801.1 Scope	Same
801.1.1 Interior finishes	Delete
	801.2 Interior wall and ceiling finish
	801.3 Interior floor finish
801.1.2 Decorative materials and trim	801.4 Decorative materials and trim
801.1.3 Applicability	801.5 Applicability
801.2 Application	801.6 Application
801.2.1 Windows	801.7 Windows
801.2.2 Foam plastics	801.8 Foam plastics
Section 802 No Change	
Section 803 Wall and Ceiling Finishes	
803.1 General	803.1 General
	803.1.1 Interior wall and ceiling finish materials
803.2 Interior wall or ceiling finishes other than textiles	803.1.2 Room corner test for interior wall or ceiling finish materials
803.2.1 Acceptance criteria	803.1.2.1 Acceptance criteria for NFPA 286
	803.1.3 Room corner test for textile wall coverings and expanded vinyl wall coverings
	803.1.3.1 Acceptance criteria for NFPA 265
	803.1.4 Acceptance criteria for textile and expanded vinyl wall or ceiling coverings tested to ASTM E 84
	803.2 Thickness exemption
	803.3 Heavy timber exemption
	803.4 Foam plastics
	803.5 Textile Wall Coverings
	803.6 Textile Ceiling Coverings
	803.7 Expanded Vinyl Wall Coverings
	803.8 Expanded Vinyl Ceiling Coverings
803.3 Stability	803.10 Stability
803.4 Application	803.11 Application of interior finish materials to fire-resistance rated structural elements
803.4.1 Direct attachment and furred construction	803.11.1 Direct attachment and furred construction
803.4.2 Set-out construction	803.11.2 Set-out construction
803.4.3 Heavy timber construction	803.11.3 Heavy timber construction
803.4.4 Materials	803.11.4 Materials
803.5 Interior finish requirements based on group	803.9 Interior finish requirements based on group
~~803.6 Textiles~~	
~~803.6.1 Surface burning characteristic test~~	
~~803.6.2 Room corner test, textiles~~	
~~803.6.2.1 Method B test protocol~~	
~~803.6.3 Room corner text, ceiling and wall finish~~	
~~803.7 Expanded vinyl wall coverings~~	
Section 804 No Change	
Section 805 No Change	
Section 806 No Change	
803.8 Insulation	807 Insulation
803.9 Acoustical ceiling systems	808 Acoustical ceiling systems
803.9.1 Materials and installation	808.1 Materials and installation
803.9.1.1 Suspended acoustical ceilings	808.1.1 Suspended acoustical ceilings
803.9.1.2 Fire-resistance-rated construction	808.1.2 Fire-resistance-rated construction

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

FS161–06/07
803.9.1 (New), Table 803.8 (New)

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Add new section and table as follows:

803.9.1 Test methods. Table 803.8 shows the fire test methods and classification criteria that apply to different interior wall and ceiling finish materials.