2015 ICC CODE DEVELOPMENT CYCLE

UPDATES TO THE 2015 PROPOSED CHANGES TO THE INTERNATIONAL CODES

The following is a compilation of errata discovered to the Code Change Monograph after the posting of Monograph on March 13th, 2015.

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MODIFICATIONS TO CODE CHANGE PROPOSALS

As indicated on page viii of the Introduction to the code change proposal monograph, floor modifications will be submitted online through the cdpACCESS. In addition, a modification **that has been brought to the floor for consideration** will be able to be viewed online. The modification will not be available for viewing until the proponent of the modification has asked for consideration of the modification during the testimony on the subject code change proposal, and the chair has ruled the modification to be in order.

Modifications can be accessed at the following URL address:

www.iccsafe.org/mods

Note that modifications will also be displayed on the screen in the hearing room as they have always been in previous code change hearings.

REVISIONS TO TENTATIVE ORDER OF DISCUSSION

FS147-15 has been Withdrawn
FS148-15 has been Withdrawn

TENTATIVE ORDER OF DISCUSSION
2015 PROPOSED CHANGES TO THE INTERNATIONAL BUILDING CODE (FIRE SAFETY)

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

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

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FS 112-15

717.5.2 (IMC 607.5.2)

Proponent: James Peterkin, representing Self (jpeterki@heery.com)

2015 International Building Code

Revise as follows:

717.5.2 Fire barriers. Ducts and air transfer openings of *fire barriers* shall be protected with *approved fire dampers* installed in accordance with their listing. Ducts and air transfer openings shall not penetrate enclosures for *interior exit* stairways and ramps and exit passageways, except as permitted by Sections 1023.5 and 1024.6, respectively.

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

1. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
2. Ducts are used as part of an *approved* smoke control system in accordance with Section 909 and where the use of a *fire damper* would interfere with the operation of a smoke control system.
3. Such walls are penetrated by fully ducted HVAC systems, have a required *fire-resistance rating* of 1 hour or less, are in areas of other than Group H and are in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a fully ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals. Flexible connections shall be permitted in the following locations:

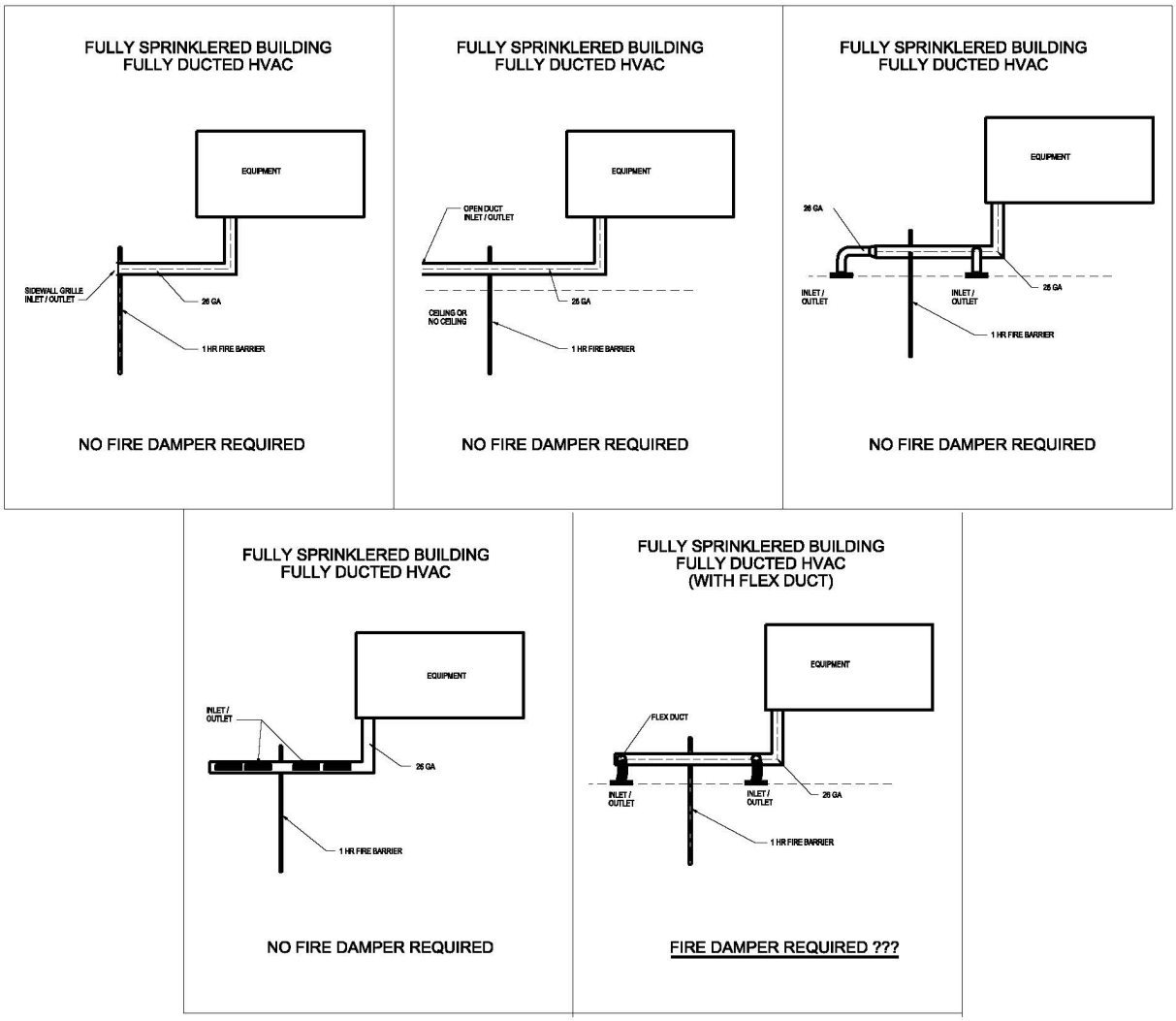
   1. Non-metal flex connections shall be permitted at the duct connection to the Air Handling Unit or Equipment located within the mechanical room.
   2. Non-metal flex connections shall be permitted from an overhead metal duct to a ceiling diffuser within the same room.

Reason: The code currently implies that any flex duct (or equipment flex connections) negates the use of the exception for fire dampers in 1 hour walls in fully ducted, fully sprinklered buildings.

The code permits the omission of the fire damper for a metal duct system that terminates either at a wall (such as a sidewall grille) or continues on to a duct opening past the fire barrier and has openings in the duct ("continuous from the air-handling appliance or equipment to the air outlet and inlet terminals"). This section does not even prohibit openings to be on both sides of the duct as long as the openings are in metal duct. However, for some reason, if flex duct is used to connect a metal duct to a ceiling diffuser (standard practice) this triggers the requirement for a fire damper. See attached sketch.
The flex connection within the concealed space does not constitute a greater hazard then other conditions that would permit the omission of the fire dampers.

Likewise, an flex connection at the AHU within the mechanical space does not constitute a hazard that should trigger the fire damper within the system

As noted above, this exception only applies in fully sprinklered buildings.



Cost Impact: Will not increase the cost of construction
The proposed wording will clear up this interpretation and reduce the cost of fire damper installation and maintenance in locations that do not constitute a significant hazard.

FS 112-15 : 717.5.2-PETERKIN5245

G 160-15

510.2

Proponent: Marshall Klein, representing NMHC

2015 International Building Code

Revise as follows:

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours. Where vertical offsets are provided as part of a horizontal assembly, the vertical offset and the structure supporting the vertical offset shall have a fire-resistance rating of not less than 3 hours..
2. The building below the *horizontal assembly* is of Type IA construction.
3. *Shaft*, *stairway*, *ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5.

   Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided:

   1. The building above the *horizontal assembly* is not required to be of Type I construction;
   2. The enclosure connects fewer than four *stories*; and
   3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.
4. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, M, R or S occupancies.
5. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.
6. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the *grade plane*.

Reason: It is very common for projects built under the provisions of Section 510.2 to include vertical offsets to accommodate elevation changes for a particular site or different ceiling heights within a story. Currently, the code provides no guidance on how to deal with these vertical offset assemblies, and the designer and code official are left to handle them as alternative methods or modifications in accordance with Chapter 1. This change will provide appropriate regulations for ensuring that any vertical offset maintains a proper and continuous fire rating for both the horizontal and vertical portions of the separation, plus it ensures that the supporting structure for a vertical offset has an equivalent fire-resistance rating.

It is worth noting that the code deals with this issue in reverse for firewalls by permitting horizontal offsets in those vertical assemblies, as described in Section 706.1 of the 2012 IBC Commentary, which states "...offsetting two vertical sections of firewalls is permissible as long as the required fire resistance rating and structual stability are maintained."

Cost Impact: Will not increase the cost of construction

There should be no impact on the cost of construction because the intent of this proposal is simply to state how the current provisions should be applied. However, there will be a decrease in administrative costs for cases where an alternative method or modification would have previously been necessary as part of the complaince path.

G 160-15 : 510.2-KLEIN4223

REVISIONS TO TENTATIVE ORDER OF DISCUSSION

G-1510-15 should read G10-15

TENTATIVE ORDER OF DISCUSSION 2015 PROPOSED CHANGES TO THE INTERNATIONAL BUILDING CODE (MEANS OF EGRESS)

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

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

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Part I:
1106 (New), 1106.1 (New), 1106.1.1 (New), 1106.1.2 (New), 1401.2.3.1 (New), 402.6 (New)
Part II:
423, 423.1.1, 423.4, 423.4.1 (New), 423.4.2 (New)

THIS IS A 2 PART CODE CHANGE PROPOSAL. BOTH PARTS WILL BE HEARD BY THE IEBC COMMITTEE. PLEASE SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org); Marc Levitan, National Institute of Standards and Technology (marc.levitan@nist.gov)

Part I

2015 International Existing Building Code

Add new text as follows:

SECTION1106 Storm Shelters

1106.1 Addition to a Group E occupancy. Where an addition is added to an existing Group E Occupancy located in an area where the shelter design wind speed for tornados is 250 mph in accordance with Figure 304.2(1) of ICC500 and the occupant load in the addition is 50 or more, the addition shall have a storm shelter constructed in accordance with ICC500.

Exceptions:

1. Group E day care facilities.
2. Group E occupancies accessory to places of religious worship.
3. Additions meeting the requirements for shelter design in ICC500.

1106.1.1 Required occupant capacity The required occupant capacity of the storm shelter shall include all the buildings on the site, and shall be the greater of the following:

1. The total occupant load of the classrooms, vocational rooms and offices in the Group E occupancy.
2. The occupant load of any indoor assembly space that is associated with the Group E occupancy.

Exceptions:

1. Where an addition is being added on an existing Group E site, and where the addition is not of sufficient size to accommodate the required occupant capacity of the storm shelter for all the buildings on the site, the storm shelter shall at a minimum accommodate the required capacity for the addition.

2. Where approved by the code official, the required occupant capacity of the shelter shall be permitted to reduced by the occupant capacity of any existing storm shelters on the site.

1106.1.2 Location Storm shelters shall be located within the buildings they serve, or shall be located where the maximum distance of travel from at least one exterior door of each building to a door of the shelter serving that building does not exceed 1000 ft. (304.8 m)

1401.2.3.1 Additions to Group E facilities. For additions to Group E occupancies, storm shelters shall be provided in accordance with Section 1106.1.

402.6 Additions to Group E facilities. For additions to Group E occupancies, storm shelters shall be provided in accordance with Section 1106.1.

Part II

2015 International Building Code

Revise as follows:

SECTION 423 STORM SHELTERS

423.1.1 Scope. This section applies to the construction of storm shelters constructed as separate detached buildings or constructed as ~~safe rooms~~ rooms or spaces within buildings for the purpose of providing ~~safe refuge~~protection from storms that produce high winds, such as tornados and hurricanes. Such structures shall be designated to be hurricane shelters, tornado shelters, or combined hurricane and tornado shelters.

423.4 Group E occupancies. In areas where the shelter design wind speed for tornados is 250 MPH in accordance with Figure 304.2(1) of ICC 500, all Group E occupancies with an ~~aggregate~~ occupant load of 50 or more shall have a storm shelter constructed in accordance with ICC 500. ~~The shelter shall be capable of housing the total occupant load of the Group E occupancy.~~

Exceptions:

1. Group E day care facilities.
2. Group E occupancies accessory to places of religious worship.
3. Buildings meeting the requirements for shelter design in ICC 500.

Add new text as follows:

423.4.1 Required occupant capacity The required occupant capacity of the storm shelter shall include all the buildings on the site, and shall be the greater of the following:

1. The total occupant load of the classrooms, vocational rooms and offices in the Group E occupancy.
2. The occupant load of any indoor assembly space that is associated with the Group E occupancy.

Exceptions:

1. Where a new building is being added on an existing Group E site, and where the new building is not of sufficient size to accommodate the required occupant capacity of the storm shelter for all the buildings on the site, the storm shelter shall at a minimum accommodate the required occupant capacity for the new building.

2. Where approved by the code official, the required occupant capacity of the shelter shall be permitted to be reduced by the occupant capacity of any existing storm shelters on the site.

423.4.2 Location. Storm shelters shall be located within the buildings they serve, or shall be located where the maximum distance of travel from at least one exterior door of each building to a door of the shelter serving that building does not exceed 1000 ft. (304.8 m)

Reason: This public proposal is submitted jointly by the National Institute of Standards and Technology and the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

As documented in the proposal that created the original requirements for installation of storm shelters in schools for the 2015 IBC, even schools built to modern building codes are susceptible to collapse during tornadoes. That proposal described a number of schools destroyed or severely damaged in several 2011 tornadoes in Missouri, Georgia, and Alabama. As documented in the National Institute of Standards and Technology's final report on its technical investigation of the Joplin, Missouri tornado of May 22, 2011, that one storm severely damaged or destroyed 10 of the 20 public schools in the City of Joplin, and several parochial schools.

In 2013, seven schoolchildren died in Oklahoma at the Plaza Towers Elementary School during the Newcastle-Moore tornado on May 20. They were taking refuge in the hallway of the New Main Classroom Building, in their designated tornado safety area, when the masonry hallway walls collapsed on them (see Figure 1). Several more students and teachers were injured in this and other buildings on the same campus. The Newcastle-Moore tornado also destroyed the Briarwood Elementary School, injuring several people, and collapsed the Gymnasium at Highland East Junior High School.

In recognition of the need to provide protection for schoolchildren from tornadoes, and that the existing school building stock is not capable of providing that protection, some states and communities have already begun to take action. Following the death of 8 students at Enterprise High School in a 2007 tornado, the State of Alabama enacted legislation in 2010 (Act 2010-746) requiring that all public schools incorporate tornado shelters built to ICC 500. Illinois recently became the second state to require ICC 500 tornado shelters in all new school building construction, when the Governor signed Public Act 098-0883 into law in August 2014.

Another positive trend in school shelter construction is that some of these facilities are also being made available as public shelters. For example, during the rebuilding following the 2011 tornado, the Joplin School District has been proactively outfitting its new and rebuilt schools with tornado shelters, and installing shelters at undamaged schools as well. These shelters, commonly in gymnasiums, are sized not only to handle the full daytime occupant load of the school but also the population of the surrounding neighborhoods within a quarter to half mile radius. The investment of public funds in these shelters is further leveraged to improve public safety by making them available whenever there is a threat from tornadoes, 24 hours a day and year-round. The shelter doors are automatically unlocked as soon as a tornado watch goes into effect. Tornado shelters at several school districts in Arkansas (Greenwood, Fort Smith, Alma, and Van Buren Public Schools) are also open to the public. At these shelters, the doors are automatically unlocked when the tornado siren sounds.

Explanation of Provisions.

• IBC Section 423.1.1 Scope. The 'safe refuge' has been revised to 'protection' so that this term will not be confused with other refuge areas

already required in the code. The remainder of the change is for consistency with the revisions to the scoping language in the ICC 500-2014.

• IBC Section 423.4 Group E occupancies. The last sentence is removed and addressed in new Section 423.4.1. Section 303.1.3 states that assembly spaces associated with Group E occupancies are considered part of the Group E occupancy. However, many schools have assembly type facilities (e.g., gymnasiums with bleachers, multi-purpose rooms used for after school meetings or school registration, libraries used for school board meetings, theaters with concerts and shows open to the parents and public, gyms used for science fairs or intermural sports) that could include the public outside of normal school hours. The purpose of the storm shelter is to provide safety for the school occupants at the time of the emergency.

• IBC Section 423.4.1 Capacity. With those many uses of a school building, not all spaces will be fully occupied at the same time that all the classrooms are fully occupied. Worse case occupant load is used for all spaces for fire exiting, but total occupant load for the building is excessive for storm shelter design. The determination for the required capacity of the shelter is based on the number of staff and students that will be in the school during a typical school day or any indoor assembly space that would be fully utilized outside school hours, whichever is greater. Thus, rather than the total occupant load of the building, the capacity of the shelter is appropriately based on occupant load described in the two scenarios described in Item 1 and 2. It is not the intent of these provisions to require outdoor areas on the site (e.g., sports fields and bleachers) to be considered since that area is not a building.
In new construction, a fire wall creates a separate building. If a facility adds on with a fire wall or puts another building on an existing Group E site, this is another opportunity to provide a storm shelter for that school. The designer would be responsible for determining the required storm shelter capacity for both the new building and for the total facility on the site. Depending on what type of rooms are in the new building, what proportion of the space can be used for a shelter is information that can be calculated using the provisions in ICC 500, Chapter 5. If this is a small new building, the shelter within the building will be required to at least accommodate the students and staff within that new building. If the new building is large enough that a shelter could accommodate all the students and staff on the site, the shelter will be required to accommodate the students and staff on the site. It is not the intent of the provisions to require the new building to be made bigger just to meet the shelter provisions.
If there is an existing storm shelter on the site, that can be considered to reduce the capacity required for the new shelter. Due to travel distances and possible age of the existing shelter (perhaps built before ICC 500), the code official can have input into the decision.

The term site is currently defined in the codes:
SITE. A parcel of land bounded by a lot line or a designated portion of a public right-of-way.

• IBC Section 423.4.2 Location. The new language in IBC 423.4.2 requires the shelter to be within a building or within a distance of travel of a1000 feet or less. Where the shelter is remote, this would be approximately a 4 minute walk at 3 mph, which is an average speed that humans tend to walk. Add that to an assumed few hundred feet travel distance to first reach the exit of the building being served, and the total travel time is 5 minutes. This is consistent with current FEMA guidance for a maximum five minute walk time to reach the tornado shelter.

Figure 1. Damage to the New Main Classroom Building at Plaza Towers Elementary School. The seven schoolchildren died in the central hallway when the classroom walls collapsed on them. An additional two staff members and one student were injured in this building.

Bibliography:

Part I:[1] Final Report, National Institute of Standards and Technology (NIST) Technical Investigation of the May 22, 2011, Tornado in Joplin, Missouri. Erica D. Kuligowski; Franklin T. Lombardo; Long T. Phan; Marc L. Levitan; David P. Jorgensen; NIST NCSTAR-3. March 2014. Available at http://dx.doi.org/10.6028/NIST.NCSTAR.3

[2] Preliminary Reconnaissance of the May 20, 2013, Newcastle-Moore Tornado in Oklahoma. Erica D. Kuligowski; Long T. Phan; Marc L. Levitan; David P. Jorgensen. NIST SP 1164. December 2013. Available at http://www.nist.gov/manuscript-publication-search.cfm?pub_id=914721.

[3] See http://www.joplinschools.org/domain/635 for more information about Joplin community safe rooms.

[4] See for example http://www.greenwoodpd.org/Community/Storm-Shelters.

Part II:[1] Final Report, National Institute of Standards and Technology (NIST) Technical Investigation of the May 22, 2011, Tornado in Joplin, Missouri. Erica D. Kuligowski; Franklin T. Lombardo; Long T. Phan; Marc L. Levitan; David P. Jorgensen; NIST NCSTAR-3. March 2014. Available at http://dx.doi.org/10.6028/NIST.NCSTAR.3

[2] Preliminary Reconnaissance of the May 20, 2013, Newcastle-Moore Tornado in Oklahoma. Erica D. Kuligowski; Long T. Phan; Marc L. Levitan; David P. Jorgensen. NIST SP 1164. December 2013. Available at http://www.nist.gov/manuscript-publication-search.cfm?pub_id=914721.

[3] See http://www.joplinschools.org/domain/635 for more information about Joplin community safe rooms.

[4] See for example http://www.greenwoodpd.org/Community/Storm-Shelters.

Cost Impact:

Part I: Will increase the cost of construction

This proposal will increase the cost of construction.

The most recent information on costs is available in FEMA P-361, Design and Construction Guidance for Community Safe Rooms (Second Edition, August, 2008). All of the values described below related to cost come from that publication. It should be noted that tornado shelters designed and constructed in accordance with FEMA P-361 guidelines are called safe rooms. FEMA's safe room guidelines are similar to ICC 500, but there are some differences. Where there are differences, in all cases, FEMA requirements are more stringent than ICC 500, as documented on page 1-2 of FEMA P-361, which states "All safe room criteria in this publication meet or exceed the shelter requirements of ICC 500." Shelters built to ICC 500 would therefore cost less, but there is no data available to quantify that cost reduction.

FEMA 361 describes safe room costs for new building projects as follows. "For large new building projects, however, the percent increase in the overall project cost is quite small. For example, many safe rooms protecting 200 to 300 occupants being constructed as part of a new school have added only 1 to 2 percent to the total project cost when the safe room was included in the design process at the beginning of the project."

Based on review of 36 safe room grant applications from 2008, the average safe room cost per square foot for projects considered technically feasible and effective for providing protection was $188/sf. From more expanded grant application data from years 2005 to 2008, the percent increase in building cost to harden a portion of a building to meet the safe room requirements ranged from 5-32 percent (cost increase per square foot of the safe room area being hardened). More information on safe room costs can be found in Chapter 2 of FEMA P-361.

Costs for storm shelters are anticipated to decrease as their use becomes more widespread. The adoption of requirements for storm shelters in tornado prone areas for Group E Occupancies and first responder facilities in the 2015 IBC will lead to installation of many more storm shelters than are currently being built. Subsequently, shelters will become less of a specialty item from a design and construction standpoint. As the market expands for specialty products needed in shelters, like tornado resistant doors, windows and shutters, economies of scale and new manufacturers joining the industry will also lead to cost reductions.

[5] Previous studies have shown that the premium for new-technology introduction costs disappear once the designer is satisfied with the technology's performance, the technology enters full implementation, and its application has become routine. See for example Ehlen, Mark A., and Harold E. Marshall. 1996. The Economics of New-Technology Materials: A Case Study of FRP Bridge Decking. NISTIR 5864. Gaithersburg, MD: National Institute of Standards and Technology.

Part II: Will increase the cost of construction

This proposal will increase the cost of construction.

The most recent information on costs is available in FEMA P-361, Design and Construction Guidance for Community Safe Rooms (Second Edition, August, 2008). All of the values described below related to cost come from that publication. It should be noted that tornado shelters designed and constructed in accordance with FEMA P-361 guidelines are called safe rooms. FEMA's safe room guidelines are similar to ICC 500, but there are some differences. Where there are differences, in all cases, FEMA requirements are more stringent than ICC 500, as documented on page 1-2 of FEMA P-361, which states "All safe room criteria in this publication meet or exceed the shelter requirements of ICC 500." Shelters built to ICC 500 would therefore cost less, but there is no data available to quantify that cost reduction.

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EB 68-15 : 1106 (New)-KULIK4828

EB81-15: Reason statement has been revised.

EB 81-15

Table 1401.6.8

Proponent: Anthony Apfelbeck, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Existing Building Code

Revise as follows:

TABLE 1401.6.8
AUTOMATIC FIRE DETECTION VALUES

OCCUPANCY	CATEGORIES					
	a	b	c	d	e	f
A-1, A-3, F, M, R, S-1	-10	-5	0	2	6	—NA
A-2	-25	-5	0	5	9	—NA
A-4, B, E, S-2	-4	-2	0	4	8	—NA
I-2	NP	NP	NP	4	5	2

NA=Not Applicable

Reason: Column f in Table 1401.6.8 is the only table in Chapter 14 that is populated with a "-" line. The dash line could be read two ways for occupancies other than an I-2: 1. As a "0", potentially conflicting with "category d" or; 2. As a Not Applicable indicator. The proponent believes that the intent of "-" is a not applicable indicator. Therefore, the column is revised to show "NA" which is then supported by a note at the bottom of the table to state that "NA" means "not applicable."

Cost Impact: Will not increase the cost of construction
This is an editorial change providing clarity to the code with no cost impact.

EB 81-15 : T1401.6.8-APFELBECK3756

Replace the Cost Impact statements for the code changes listed below as follows:

INTERNATIONAL EXISTING BUILDING CODE (IEBC):

EB4-15:
Cost Impact: Will not increase the cost of construction. This proposal will not affect the cost of construction because it merely adds a definition.

EB6-15:
Cost Impact: Will not increase the cost of construction. This proposal will not increase the cost of construction because it adds alternatives for alterations in flood hazard areas.

EB16-15:
Cost Impact: Will not increase the cost of construction. This proposal could reduce the cost of construction because it allows alteration projects using the prescriptive method to use sprinkler systems as alternatives to other forms of protection as allowed in the Building Code and as allowed in the IEBC for the work area method.

EB17-15:
Cost Impact: Will not increase the cost of construction. This proposal will not affect the cost of construction because it deletes unnecessary language.

EB29-15:
Cost Impact: Will not increase the cost of construction. This proposal will not increase the cost of construction because it is simply coordinating current options in the IEBC.

M62-15: Numbering was incorrect in the Exceptions. A new item #8 is being proposed.

M 62-15

601.5

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

2015 International Mechanical Code

Revise as follows:

601.5 Return air openings. Return air openings for heating, ventilation and air-conditioning systems shall comply with all of the following:

1. Openings shall not be located less than 10 feet (3048 mm) measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space.
2. Return air shall not be taken from a hazardous or insanitary location or a refrigeration room as defined in this code.
3. The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space.
4. Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturer's installation instructions, ACCA Manual D or the design of the registered design professional.
5. Return air taken from one dwelling unit shall not be discharged into another dwelling unit.
6. Taking return air from a crawl space shall not be accomplished through a direct connection to the return side of a forced air furnace. Transfer openings in the crawl space enclosure shall not be prohibited.
7. Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic.

   Exceptions:

   1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen and are located not less than 10 feet (3048 mm) from the cooking appliances.
   2. Dedicated forced air systems serving only the garage shall not be prohibited from obtaining return air from the garage
8. <u>Return air shall not be taken from indoor swimming pool enclosures and associated deck areas except where such spaces are dehumidified.</u>

Reason: It is not desirable to pull return air from swimming pool areas due to the affects it would have on the system from humidity and chemical odors associated with such spaces. A dedicated system would be required or a combination of supply and exhaust or the air should be dehumidified.

Cost Impact: Will not increase the cost of construction
No cost unless the air is treated.

M 62-15 : 601.5-MCMANN3834

REVISIONS TO TENTATIVE ORDER OF DISCUSSION

P61-15 has been Withdrawn
P68-15 has been Withdrawn
Remove the WP from P162-15 Part I
P172-15 Part II should read P172-15 Part I
P219-15 Part I has been Withdrawn
P242-15 has been Withdrawn

TENTATIVE ORDER OF DISCUSSION 2015 PROPOSED CHANGES TO THE INTERNATIONAL PLUMBING CODE

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

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

Numbers not used:
P32-15
P85-15
P116-15

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P2-15
P3-15 Part I
P4-15
P5-15
P6-15
P7-15
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P168-15
P179-15
P180-15
P181-15 Part I
PSD1-15
P182-15
P183-15
P185-15
P187-15
P191-15 Part I
P196-15
P51-15 Part I
P52-15
P53-15 Part I
P54-15 Part I
P55-15 Part I
P56-15
P57-15
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P60-15
~~P61-15~~
P62-15
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P80-15
P81-15
P82-15 Part I
P83-15
P84-15
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P87-15
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P89-15
P90-15
P91-15
P92-15
P93-15 Part I
P94-15
P95-15
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P97-15
P98-15 Part I
P99-15 Part I
P100-15
P101-15 Part I
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P106-15
P107-15 Part I
P108-15
P109-15 Part I
P110-15
P111-15
P112-15
P113-15 Part I
P115-15 Part I
P117-15 Part I
P119-15
P120-15
P121-15
P122-15
P123-15
P124-15 Part I
P125-15
P127-15
P128-15 Part I
P130-15
P131-15 Part I
P132-15 Part I
P133-15 Part I
P135-15 Part I
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P142-15
P143-15
P144-15
P145-15
P146-15
P147-15
P148-15
P149-15
P150-15 Part I
P151-15
P152-15
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P164-15
P165-15
P166-15 Part I
P167-15
P169-15
P170-15 Part I
P171-15
P172-15 ~~Part II~~ Part I
P173-15
P174-15 Part I
P175-15
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P178-15 Part I
P184-15 Part I
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P190-15 Part I
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P194-15 Part I
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P197-15 Part I
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P30-15: Replace previously published code change with this one. Changes made to table.

P 30-15

Table 403.1 (IBC Table 2902.1)

Proponent : Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Plumbing Code

Revise as follows:

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	A-1[d]	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		A-2[d]	Nightclubs, bars, taverns, dance halls and buildings for similar purposes	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
			Restaurants, banquet halls and food courts	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
			Casinos	1 per 100 for the first 400 and 1 per 250 for the remainder exceeding 400	1 per 50 for the first 400 and 1 per 150 for the remainder exceeding 400	1 per 250 for the first 750 and 1 per 500 for the remainder exceeding 750		—	1 per 1,000	1 service sink
		A-3[d]	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink

			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750	—	1 per 1,000	1 service sink
			Places of worship and other religious services	1 per 150	1 per 75	1 per 200	—	1 per 1,000	1 service sink

(Portions of table not shown remain unchanged)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.

Reason: The Plumbing Fixture Count Table 403.1 (IBC [P] 2902.1) does not address casinos as a specific use. The building codes are beginning to recognize the unique nature of the use and occupancy for these structures; as an example the code recognizes an occupant load factor of 1:11 for gaming areas. Casinos have been constructed outside of Las Vegas for years and it appears that this trend is continuing nationally. A fixture count for this use is a necessary addition to the code.

As an A-2 occupancy, the code user is currently required to select either the Restaurants/Banquet Halls or Nightclubs/Bars uses under the A-2 occupancy in Table 403.1 (IBC [P] 2902.1) to set fixture counts, 1:75 and 1:40, respectively. The fixture counts provided in this amendment closely resemble the fixture count table used in the Southern Nevada, including the Las Vegas strip. There has been no history in Las Vegas of long lines at Casino restrooms. Casinos represent a unique place where restaurants, gaming, retail and shows are combined into one expansive building. However, even with large crowds on gaming floors, restroom facilities are not so overcrowded as to produce long lines.

Specifically, for a 30,000-ft^2 Casino,Table 403.1 (IBC [P] 2902.1)would require 152% of the number of fixtures that are currently required *if* Casinos are tabulated as large assembly space (nightclub/bar). As a restaurant or banquet hall, Table 403.1 (IBC [P] 2902.1) would require 238% of the number of fixtures required by Table 403.1 (IBC [P] 2902.1).

This amendment also accounts for increase usage and need for female restroom similar to A-4 and A-5 occupancies.

Cost Impact: Will not increase the cost of construction
This proposal provides a more lenient fixture count for casinos, so the cost of construction would presumably decrease.

P 30-15 : T403.1 (IBC [P] 2901.1)-DIGIOVANNI3854

P 96-15
504.7

Proponent: James Richardson, Jr (jarichardson@columbus.gov)

2015 International Plumbing Code

Revise as follows:

504.7 ~~Required pan.~~ Water Heater Pan. Where a storage tank-type water heater or a hot water storage tank is installed in ~~a~~ an elevated location ~~where~~ above the finished floor of a space, a water heater pan shall be provided to collect leakage from the tank ~~will cause damage,~~ and the tank connections. A pan required by this section or required by the design professional shall be ~~installed in~~ a galvanized steel pan having a material thickness of not less than 0.0236 inch (0.6010 mm) (No. 24 gage), or other pans approved for such use. Water heater pans shall be optional for all other installations.

Reason: There is not one documented case of a leaking water heater causing a structure to fail. There are places where they should be installed, such as elevated locations where leakage could cause injury to someone who may not know the water heater is above them in a ceiling, or where they are elevated above a fixture and the leakage or blow-off from the T&P valve could injure a person using the fixture.

Cost Impact: Will not increase the cost of construction
Not putting in pans in locations where there are not needed will save significant labor and material costs in the long run.

P 96-15 : 504.7-RICHARDSON6027

RM 6-15

M1411.7.1 (New), Chapter 44

Proponent : Howard Ahern, representing Airex Mfg. (howard@plumberex.com)

2015 International Residential Code

Add new definition as follows:

SECTIONR202 Vibration Isolator

A pipe isolater containing resilient material used to absorb and prevent transfer of vibration energy.

Add new text as follows:

M1411.7.1 Exterior wall penetration. Refrigerant piping shall be isolated by a vibration isolator and supported at exterior wall penerations. Vibration isolators shall comply with ASTM E331.

Add new standard(s) as follows:

ASTM E331- 00(2009) Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference

Reason: This code change is needed to create consistency for installation with this code and Equipment Manufactureres installation instructions for isolation of refrigerant piping to prevent vibration damage. Refrigerant piping must be isolated and supported to eliminate vibration transfer to the exterior wall specifically from the penetration of refrigerant piping. The majority of Equipment Manufactureres Installation Instructions have for the last 4 years already required isolation of the refrigerant piping in their installation instructions to prevent vibration damage and for noise reduction. Isolation of the piping is also needed to prevent damage to the piping from contact with hard surfaces and to eliminate stress from vibration which can cause piping and joint fatigue that could lead to leaking refrigerant.
The Exterior wall penetration is a critical space due to its close proximity to the equipment and that it is the first wall penetrated by refrigerant piping in the vast majority of installations.

The only sure way to cut off the path of problematic vibration and eliminate the transference of vibration to the structure is with a Vibration Isolator with the piping supported at the point of penetration to avoid any contact with wall building materials.

Vibration will take the path of least resistance. If the piping is not isolated, then unwanted vibration will transfer through to the wall. Vibration Isolators contain resilient material that absorb the vibration energy and isolate the piping. There are already many materials and products being used in construction for piping isolation.

Trying to repair or retrofitting for vibration problems after complaints arise, is often far more expensive than an original installation.

The exterior wall penetration is often overlooked as a vibration path. Substantial acoustic energy can pass through a small opening in a wall. Reciprocating compressors mainly cause this vibration energy. From a distributing rattle or asking "why is my wall buzzing" every time the equipment starts to occupants perturbed by a "humming " noise, the problems with vibration transmission to the wall from refrigerant lines can be a constant problem for occupants.

Installation of these isolators when installed must not allow water penetration into the exterior wall and must meet ASTM E331 Standard Test Method for Water Penetration _____

Reference R703.1.1 Exterior wall coverings

R703.1.1 Water resistance. The exterior wall envelope shall be designed and constructed in a manner that prevents the accumulation of water within the wall assembly by providing a water-resistant barrier behind the exterior veneer as required by Section R703.2 and a means of draining to the exterior water that enters the assembly. Protection against condensation in the exterior wall assembly shall be provided in accordance with Section R702.7 of this code.

Exceptions: A weather-resistant exterior wall envelope shall not be required over concrete or masonry walls designed in accordance with Chapter 6 and flashed in accordance with Section R703.4 or R703.8.

Compliance with the requirements for a means of drainage, and the requirements of Sections R703.2 and R703.4, shall not be required for an exterior wall envelope that has been demonstrated to resist wind-driven rain through testing of the exterior wall envelope, including joints, penetrations and intersections with dissimilar materials, in accordance with ASTM E 331 under the following conditions

Exterior wall envelope test assemblies shall include at least one opening, one control joint, one wall/eave interface and one wall sill. All tested openings and penetrations shall be representative of the intended end-use configuration.

Exterior wall envelope test assemblies shall be at least 4 feet by 8 feet (1219 mm by 2438 mm) in size.

Exterior wall assemblies shall be tested at a minimum differential pressure of 6.24 pounds per square foot (299 Pa).

Exterior wall envelope assemblies shall be subjected to the minimum test exposure for a minimum of 2 hours. The exterior wall envelope design shall be considered to resist wind-driven rain where the results of testing indicate that water did not penetrate control joints in the exterior wall envelope, joints at the perimeter of openings penetration or intersections of terminations with dissimilar materials.

*"An isolation system is the best inexpensive insurance against unwanted vibration."

The International Mechanical Code and Uniform Mechanical Code both recognize the problems associated with piping vibration.

*Vibration Isolation by Robert Simmons, P.E., ASHRAE Journal 2009

Cost Impact: Will increase the cost of construction
Negligible cost increase, as The International Mechanical Code and the Uniform Mechanical Code already require designing and installing refrigerant piping to address vibration. A major percentage of any increased cost has already been absorbed by this requirement. The majority of Equipment Manufactureres already require isolation of the refrigerant piping in their installation instructions to prevent vibration. Again, any increased cost has already been absorbed by the aforementioned installation requirement.
There are many products on the market that can be installed for this requirement. Many Builders have already been installing products for vibration isolation and many Contractors building with pressure testing (blower door) have been addressing this penetration area with better installation including isolation. As there are a variety of isolating materials and systems to provide isolation, it is a minor increase in construction cost but it is a significant savings to Home Owners and Builders, as trying to repair vibration problems after complaints is often very costly.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E331, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

RM 6-15 : M1411.7.1 (New)-AHERN4794

REVISIONS TO TENTATIVE ORDER OF DISCUSSION

P219-15 Part II has been Withdrawn

TENTATIVE ORDER OF DISCUSSION
2015 PROPOSED CHANGES TO THE INTERNATIONAL RESIDENTIAL CODE (PLUMBING)

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

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

- P3-15 Part II

RP1-15

RP2-15
- P20-15 Part II
- P98-15 Part II
- P166-15 Part II
- P99-15 Part II

RP3-15
- P15-15 Part II
- P19-15 Part II
- P115-15 Part II
- P117-15 Part II
- P51-15 Part II
- P53-15 Part II

RP4-15
- P55-15 Part II
- P82-15 Part II
- P162-15 Part II
- FG42-15 Part II

RP5-15

RP6-15

RP7-15
- P93-15 Part II

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- P107-15 Part II
- P109 Part II

RP9-15

RP10-15
- P101-15 Part II
- P150-15 Part II
- P124-15 Part II

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RP12-15

RP13-15
- P113-15 Part II

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RP15-15
- P133-15 Part II
- P131-15 Part II
- P135-15 Part II

RP16-15
- P132-15 Part II
- P170-15 Part II
- P172-15 Part II
- P174-15 Part II
- P184-15 Part II
- P128-15 Part II

RP17-15
- P181-15 Part II
- P190-15 Part II
- P178-15 Part II
- P191-15 Part II
- P194-15 Part II
- P195-15 Part II
- P197-15 Part II
- P198-15 Part II
- P202-15 Part II
- P203-15 Part II

RP18-15
- P204-15 Part II
- P205-15 Part II
- P215-15 Part II
- P218-15 Part II
- ~~P219-15 Part II~~
- P220-15 Part II
- P221-15 Part II
- P224-15 Part II
- P226-15 Part II
- P228-15 Part II

RP19-15

REVISIONS TO THE CROSS INDEX OF PROPOSED CHANGES

2015 ICC CODE DEVELOPMENT CYCLE
CROSS INDEX OF PROPOSED CODE CHANGES

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

Listed in this cross index are proposed code changes that include sections of codes or codes other than those listed on page viii. For example, IBC Section 1004.5 is proposed for revision in code change G131-15, which is to be heard by the IBC-General. This section of the IBC is typically the responsibility of the IBC-Means of Egress Committee as listed in the table of 2012-2014 Staff Secretaries. It is therefore identified in this cross index. Another example is Section 607.3.1 of the International Mechanical Code. The International Mechanical Code is normally maintained by the IMC Committee, but Section 607.3.1 will be considered for revision in proposed code change FS107-15 which will be on the IBC-Fire Safety Committee agenda. In some instances, there are other subsections that are revised by an identified code change that is not included in the cross index.

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

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

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

International Building Code	
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Building element, interior	FS177
Common path of egress travel	E100
Continuous air barrier	FS154
Continuous insulation	FS161, FS162
Control coating	FS127
Control vestibule	E56
Credential	E57 Part I
Daylight responsive control	E31
Delayed action closer	FS94
Exit access stairway	E102
Fire curtain	FS102 Part I, FS102 Part II, FS102 Part III
Gaming	E167
Gaming area	E167
Gaming machine type	E167
Gaming table type	E167
General lighting	E31
High speed door	E58
High traction	E-2
Insulated vinyl siding	FS156
Interior building element	FS177
Interior radiation control coating	FS127
Low-energy power-operated door	E54
Occupant sensor control	E31
Open-air assembly seating	E132
Projection	FS11
Smoke-protected assembly seating	E132
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302.2	E-5 Part II
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403.5.1	E128
403.5.5	E116
404.6	FS102 Part II
406.4.1	E1
405.4.2	FS74
405.4.3	FS74
406.8.3	FS140
407.3.1	FS74
408.3.8	FS74
410.3.5	FS74

423.1.1	EB68 Part II
423.4	EB68 Part II
423.4.1	EB68 Part II
423.4.2	EB68 Part II
424.2	FS140
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711.2.4.3	G164
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722.1	G22
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803.3	G180
803.13.3	G180
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903.2.8.4	G33
907.5.2.1	G202
909.20.6.1	G117
913.2.2	G117
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1023.3.1	FS74
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1211.1	P54 Part II
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1406.3	G180
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