

INTERNATIONAL FIRE CODE

F2-09/10
202 (New)

Proposed Change as Submitted

Proponent: Tom Lariviere, Chairman, Joint Fire Service Review Committee

Add new definition as follows:

SECTION 202 **GENERAL DEFINITIONS**

FIRE HAZARD. Any thing or act which increases or could cause an increase of the hazard or threat of fire to a greater degree than that customarily recognized as normal by persons in the public service regularly engaged in preventing, suppressing or extinguishing fire or any thing or act which could obstruct, delay, hinder or interfere with the operation of the fire department or the safety of occupants in the event of fire.

Reason: The definition of "Fire Hazard" is not currently found in the IFC. The term is used 31 times in the IFC and is found in the following Chapters: 1, 2, 3, 4, 6, 9, 10, 19, 20, 21, 23, 24, 26, 33, 34 and Appendix E. However, the term is not defined in the code. The inclusion of this definition will further clarify the intent of an otherwise ambiguous term.

A similar proposal was discussed in the last code change cycle. Comments were received and have been addressed as follows:

1. "Why not use the standard Webster definition?" – the Webster Dictionary does not define "Fire Hazard"
2. "Is it better to leave as an undefined term." – The definition of "Fire Hazard" is not currently found in the IFC. The term appears in the IFC 31 times. The term is commonly used in the IFC, so it must have some intended value. For a situation to be a fire hazard it must either increase the potential of ignition, or increase the intensity of fire once it does ignite, or obstruct/hinder fire department operations, or obstruct/hinder occupant egress.
3. "What is difference of fire risk and fire hazard?" – Fire risk occurs in all locations and all situations of work, business, and just plain life. The level of fire risk varies in all situations. However when something occurs to raise or affect the normally expected level of fire risk, the potential of ignition increases and this situation then becomes classified as a fire hazard. As specified in the definition, if the situation creates an increase in the potential for fire (fire risk), it is a fire hazard.
4. "This definition would create a conflict with IFC 906.3." – This is incorrect, the words "fire hazard" are used in this section, however, they do not stand alone. The words are used as part of the term "Class A Fire Hazards". To state that the defined term "fire hazard" must be used in defining "Class A Fire Hazard" is incorrect, and is out of context. This is not the same term. The term "Class A Fire Hazard" is a specific and defined term dealing with Class A materials. This makes as little sense as assuming that Chapter 15 Flammable Finishes only applies to flammable liquids. In case you are wondering...Chapter 15 includes flammable liquids, along with combustible liquids and combustible powders, etc.

The definition of "fire hazard", although a somewhat objective definition, is needed to be able to point back to some code reference when the term is used in the code in those 31 locations.

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The committee felt that the proposal contains vague language, would limit who is deemed capable of recognizing a fire hazard and could result in inconsistent enforcement.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Marcelo M. Hirschler, GBH International, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

SECTION 202 GENERAL DEFINITIONS

~~**FIRE HAZARD.** Any thing or act which increases or could cause an increase of the hazard or threat of fire to a greater degree than that customarily recognized as normal by persons in the public service regularly engaged in preventing, suppressing or extinguishing fire or any thing or act which could obstruct, delay, hinder or interfere with the operation of the fire department or the safety of occupants in the event of fire. The potential for harm associated with fire.~~

Commenter's Reason: The technical committee was concerned about the vague language in the original proposal. It was also concerned that the proposed definition might limit who is deemed to be capable of recognizing a fire hazard and could result in inconsistent enforcement. The revised language in the comment is taken from the ASTM definition for fire hazard and does not discuss who would enforce the concept since that is not necessary in the definition. The issue in the definition should be "what is fire hazard" and nothing else. The definition need not address who recognizes the existence of fire hazard, or who acts on it or whose job it is to notify; all of those actions should be discussed (as they currently are) in the body of the code and not in the section on definitions.

Final Action: AS AM AMPC _____ D

F6-09/10

315

Proposed Change as Submitted

Proponent: Tom Lariviere, Chairman, Joint Fire Service Review Committee and Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Revise as follows:

SECTION 315 ~~MISCELLANEOUS COMBUSTIBLE MATERIALS~~ GENERAL STORAGE

~~**315.1 General.** Storage, use and handling of miscellaneous combustible materials shall be in accordance with this section.~~

~~**315.2 Permit required.** A permit for miscellaneous combustible storage shall be ~~obtained in accordance with~~ required as set forth in Section 105.6.~~

~~**315.2**~~ **315.3 Storage in buildings.** Storage of ~~combustible~~ materials in buildings shall be orderly and stacks shall be stable. Storage of combustible materials shall be separated from heaters or heating devices by distance or shielding so that ignition cannot occur.

(Renumber subsequent sections)

Reason: This proposal will modify this section covering storage in buildings in several different ways.

This proposal is intended to clarify that this section contains requirements which apply to storage in general, not just storage of combustible materials. Specifically, Section 315.2.1 requires that a separation be maintained between the top of storage and ceilings or sprinklers. This requirement applies to all storage, whether combustible or not, and providing a clearance from sprinklers and ceilings is critical whether the materials are combustible or not.

The first sentence of Section 315.1 is revised to delete the reference to "use and handling". As stated in the title of the section, this section applies to "storage". Sections 315.1 and 315.2 deal with storage and there are no requirements for use or handling.

The second sentence of Section 315.1 is separated and creates a new Section 315.2 dealing with permits. This follows standard format throughout the rest of the IFC. The new Section 315.2 is also revised to specify that a permit is required only for storage of combustible materials. Even though this section regulates storage of both combustible and noncombustible materials, only combustible materials are required to obtain a permit when the storage exceeds 2500 cubic feet. The quantity limit is specified in the permit requirements in Section 105.6.29.

Section 315.2 is renumbered to 315.3 and revised to specify that the first sentence applies to ALL storage, and the second sentence applies to combustible storage. This will then state that all storage, whether combustible or not, is regulated and should be orderly. This means that the

stored materials, whether combustible or not, are orderly, and that the stacks of stored materials need to be stable. These requirements allow for aisles being maintained, and the reduction of injury or blocking of exit during a seismic event or even when materials are hit with a hose stream during fire operations.

Hazards specific to 'combustible' materials have been more clearly identified. The second sentence in 315.3 is revised to specify that only combustible materials need to be separated from ignition sources. It is not necessary to separate non-combustible materials from ignition sources because there is no hazard.

Cost Impact: The code change proposal will increase the cost of construction.

ICCFILENAME: LARIVIERE-F3-315.DOC

Public Hearing Results

Committee Action:

Approved as Submitted

Committee Reason: The committee agreed with the proponent's reason statement and felt that the proposal provides needed improvements to clarify the storage requirements.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Lawrence G. Perry, AIA, representing Building Owners and Managers Association (BOMA) International, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

315.1 General. Storage shall be in accordance with this section.

315.2 Permit required. A permit for miscellaneous combustible storage shall be required as set forth in Section 105.6.

315.3 Storage in buildings. Storage of materials in buildings shall be orderly and stacks shall be stable. Storage of combustible materials shall be separated from heaters or heating devices by distance or shielding so that ignition cannot occur.

(Renumber subsequent sections)

Commenter's Reason: The modification seeks to delete language that is unclear and unenforceable. What criteria would be used to determine if a stack of stored materials is 'stable'?

Final Action: AS AM AMPC_____ D

F7-09/10

316.4 (New)

Proposed Change as Submitted

Proponent: Tom Lariviere, Chairman, Joint Fire Service Review Committee

Add new text as follows:

316.4 Obstructions on roofs. Installing or maintaining wires, cables, ropes, aerial antennas, or other suspended obstructions installed or maintained on the roofs of buildings having a roof slope of less than 30 degrees, shall be located to provide a vertical clearance of not less than 7 feet (2133 mm) between the roof surface and such obstruction.

Exception: Obstructions shall be permitted to be installed less than 7 feet (2133 mm) high provided they are protected in a manner to prevent injury to firefighters working on the roof.

(Renumber subsequent sections)

Reason: This proposal will increase for firefighter safety when performing fire suppression related duties on a rooftop, and will also protect maintenance workers as they are working on a rooftop.

Obstructions below 7 feet from the roof surface may be difficult or impossible to see at night or when obscured by smoke conditions. Many accidents have occurred where an obstruction was not seen and was run into by someone on the roof. In these instances, people have been injured, strangled, entangled, and fallen from rooftops.

This proposal does not prohibit the installation of these items, but it requires that they are identified or protected. For example, protection may be as simple as placing a white 2" diameter plastic pipe around the guy wire used to secure an antenna. Or be constructing an obstruction below the guy wire so that walking under the wire is not possible.

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

ICCFILENAME: LARIVIERE-F4-316.4.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The committee felt that while the concept is good, it is proposed for the wrong place. It also felt that the proposal would conflict with the *International Building Code* which regulates the initial installations since the proposed provisions would be retroactive. The committee also felt that the phrase "...protected in a manner to prevent injury..." in the exception was vague and should be portrayed as being subject to the approval of the fire code official.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

David S. Collins, FAIA, The Preview Group Inc, representing The American Institute of Architects, requests Approval as Modified by this Public Comment.

Replace the proposal with the following:

316.4 Obstructions on roofs. Wires, cables, ropes, antennas, or other suspended obstructions installed on the roof of a building having a roof slope of less than 30 degrees shall not create an obstruction that is less than 7 feet (2133 mm) high above the surface of the roof.

Exceptions:

1. Such obstruction shall be permitted where the wire, cable, rope, antennae or suspended obstruction is encased in a white 2" minimum diameter plastic pipe or an approved equivalent.
2. Such obstruction shall be permitted where there is a solid obstruction below such that accidentally walking into the wire, cable, rope, antennae or suspended obstruction is not possible.

Commenter's Reason: During testimony it was noted that the supporting statement in the proposal contained some specific options for how to overcome the prohibition that were not included in the change itself, making the application of the change more difficult to understand. As part of this comment, included in the exceptions are the items that were suggested by the proponent as options.

In addition, the charging language has been simplified and "aerial antennas" have been removed from the list of prohibited obstructions as they are made up of wires and cables. The real issue is not usually the antennae itself, but the guy wires supporting it which may cause the dangerous obstruction. We agree with the concept of providing protection where such obstructions can be dangerous, and believe that the change provides the needed level of protection.

Public Comment 2:

Joe Pierce (Chairman), Dallas Fire Department, representing Joint Fire Service Review Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

316.4 Obstructions on roofs. Installing or maintaining Wires, cables, ropes, aerial antennas, or other suspended obstructions installed or maintained on the roofs of buildings having a roof slope of less than 30 degrees, shall be located to provide a vertical clearance of 7 feet (2133 mm) or more between the roof surface and such obstruction.

Exception: Obstructions may be installed less than 7 feet (2133 mm) high provided they are protected in a manner to prevent injury to firefighters working on the roof.

(Renumber remaining sections...)

Commenter's Reason: The Code Change Proposal was Disapproved at the Code Development Hearing because it was confusing. The revisions in the Public Comment are not intended to regulate "whether" these items are installed on the roof, but if they are installed, they need to be protected.

This proposal does not prohibit the installation of these items, but it requires that they are identified or protected. For example, protection may be as simple as placing a white 2" diameter plastic pipe around the guy wire used to secure an antenna. Or be constructing an obstruction below the guy wire so that walking under the wire is not possible.

Obstructions below 7 feet from the roof surface may be difficult or impossible to see at night or when obscured by smoke conditions. Many accidents have occurred where an obstruction was not seen and was run into by someone on the roof. In these instances, people have been injured, strangled, entangled, and fallen from rooftops.

Final Action: AS AM AMPC____ D

F8-09/10

316.0 (New), 905.3.8 (IBC [F] 905.3.8) (New)

Proposed Change as Submitted

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Add new text as follows:

SECTION 316.0 **ROOF GARDENS AND LANDSCAPED ROOFS**

316.1 General. Rooftop gardens and landscaped roofs shall be installed and maintained in accordance with this code and Sections 1505.0 and 1507.16 of the *International Building Code*.

316.2 Rooftop garden or landscaped roof size. Rooftop garden or landscaped roof areas shall not exceed 15,625 ft² (1,450 m²) in size for any single area with a maximum dimension of 125 ft (39 m) in length or width. A minimum 3 ft (0.9 m) wide clearance shall be provided between adjacent rooftop garden or landscaped roof areas.

316.3 Rooftop structure and equipment clearance. A minimum 3 ft (0.9 m) wide clearance shall be provided between the rooftop garden or landscaped roof and rooftop structures, including but not limited to mechanical and machine rooms, penthouses, skylights, roof vents, solar panels, antenna supports, and building service equipment.

316.4 Vegetation. Vegetation shall be maintained as described in Sections 316.4.1 and 316.4.2

316.4.1 Irrigation. Supplemental irrigation shall be provided as necessary to maintain levels of hydration necessary to keep green roof plants alive and to keep dry foliage to a minimum.

316.4.2 Dead foliage. Dead foliage and biomass shall be removed immediately.

905.3.8 (IBC [F] 905.3.8) Roof gardens and landscaped roofs. Buildings or structures with roof gardens or landscaped roofs that are equipped with a standpipe shall extend the standpipe to the roof level on which the roof garden or landscaped roof is located.

Reason: As rooftop gardens and landscaped roofs gain in acceptance and popularity reasonable requirements need to be added to the codes to address the fuel load that these additions can add to a building or structure.

New Section 316.0 is proposed to be added to the International Fire Code to manage the size of any one area utilized for these improvements, provide for a reasonable 3 foot clearance to structures and equipment that require access for maintenance and fire response purposes and to control fire exposure. A requirement that means for hydration be provided and that dead foliage and biomass be removed immediately.

A new section is proposed for the construction of buildings that have fire standpipe systems for the standpipe to be extended to the roof if a rooftop garden or landscape is proposed.

Cost Impact: These requirements will increase the cost of construction for those buildings where a roof garden or landscaped roof is proposed to be installed on the roof.

Analysis: Code Change S10-09/10 appears on the hearing order of the IBC-Fire Safety Committee and proposes revisions to IBC Table 1505.1 and Section 1507.16 on this topic. Code change F238-09/10 proposes similar requirements.

ICCFILENAME: DAVIDSON-SHUMAN-F9-316.0.DOC

Public Hearing Results

Committee Action:

Approved as Modified

Modify the proposal as follows:

SECTION 316.0 ROOF GARDENS AND LANDSCAPED ROOFS

316.1 General. Rooftop gardens and landscaped roofs shall be installed and maintained in accordance with this code and Sections 1505.0 and 1507.16 of the *International Building Code*.

316.2 Rooftop garden or landscaped roof size. Rooftop garden or landscaped roof areas shall not exceed 15,625 ft² (1,450 m²) in size for any single area with a maximum dimension of 125 ft (39 m) in length or width. A minimum ~~3 ft (0.9 m)~~ **6 ft (1.8 m)** wide clearance consisting of a Class A-rated roof system complying with ASTM E108 or UL790 shall be provided between adjacent rooftop garden or landscaped roof areas.

316.3 Rooftop structure and equipment clearance. ~~For all vegetated roofing systems abutting combustible vertical surfaces, a Class A-rated roof system complying with ASTM E108 or UL790 shall be achieved for a~~ **A** minimum ~~3 ft (0.9 m)~~ **6 ft (1.8 m)** wide continuous border placed around rooftop structures and all rooftop equipment clearance shall be provided between the rooftop garden or landscaped roof and rooftop structures, including, but not limited to, mechanical and machine rooms, penthouses, skylights, roof vents, solar panels, antenna supports, and building service equipment.

316.4 Vegetation. Vegetation shall be maintained as described in Sections 316.4.1 and 316.4.2

316.4.1 Irrigation. Supplemental irrigation shall be provided as necessary to maintain levels of hydration necessary to keep green roof plants alive and to keep dry foliage to a minimum.

316.4.2 Dead foliage. ~~Dead foliage and Excess biomass, such as overgrown vegetation, leaves and other dead and decaying material, shall be removed at regular intervals not less than two times per year immediately.~~

905.3.8 (IBC [F] 905.3.8) Roof gardens and landscaped roofs. Buildings or structures with roof gardens or landscaped roofs that are equipped with a standpipe shall extend the standpipe to the roof level on which the roof garden or landscaped roof is located.

Committee Reason: The committee felt that the proposal provides needed provisions for the regulation of the specified hazards. The modification provides better correlation with Section 1507.16 of the *International Building Code*.

Analysis: IBC code change S10-09/10 related to this topic was Approved as Modified. Code change F238-09/10 proposing similar requirements to this proposal was Disapproved. See the Report of Hearing for these code changes.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Dave Frable, U.S. General Services Administration, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

SECTION 316.0 ROOF GARDENS AND LANDSCAPED ROOFS

316.1 General. Rooftop gardens and landscaped roofs shall be installed and maintained in accordance with this code and Sections 1505.0 and 1507.16 of the *International Building Code*.

316.2 Rooftop garden or landscaped roof size. Rooftop garden or landscaped roof areas shall not exceed 15,625 ft² (1,450 m²) in size for any single area with a maximum dimension of 125 ft (39 m) in length or width. A minimum ~~3 ft (0.9 m)~~ **6 ft (1.8 m)** wide clearance consisting of a Class A-rated roof system complying with ASTM E108 or UL790 shall be provided between adjacent rooftop garden or landscaped roof areas.

316.3 Rooftop structure and equipment clearance. ~~For all vegetated roofing systems abutting combustible vertical surfaces, a Class A-rated roof system complying with ASTM E108 or UL790 shall be achieved for a~~ minimum ~~3 ft (0.9 m)~~ **6 ft (1.8 m)** wide continuous border placed around rooftop structures and all rooftop equipment, including, but not limited to, mechanical and machine rooms, penthouses, skylights, roof vents, solar panels, antenna supports, and building service equipment.

316.4 Vegetation. ~~Vegetation shall be maintained as described in Sections 316.4.1 and 316.4.2~~

316.4.1 Irrigation. ~~Supplemental irrigation shall be provided as necessary to maintain levels of hydration necessary to keep green roof plants alive and to keep dry foliage to a minimum.~~

316.24-2 Dead foliage. Excess biomass, such as overgrown vegetation, leaves and other dead and decaying material, shall be removed at regular intervals not less than two times per year.

~~**905.3.8 (IBC [F] 905.3.8) Roof gardens and landscaped roofs.** Buildings or structures with roof gardens or landscaped roofs that are equipped with a standpipe shall extend the standpipe to the roof level on which the roof garden or landscaped roof is located.~~

Commenter's Reason: The intent of the proposed modification is to meet the original main intent of the proponent which was to provide reasonable requirements within the IBC to address roof gardens and landscape roofs. However, based on the actions of the Committee, unreasonable requirements for roof gardens and landscape roofs have now been incorporated into the code without any technical justification or fire loss data provided by either the proponent of the original code change proposal or the Committee during their discussions. It is our belief that incorporating unjustified requirements such as these in the code will only lead to many confrontations between Code Officials and City leaders that are promoting green sustainable designs. For example, the new section currently requires:

- (1) a minimum 6 foot wide clearance consisting of a Class A rated roof system between adjacent roof gardens and landscape roof areas.
- (2) a minimum 6 foot wide clearance consisting of a Class A roof system continuous around the rooftop structure,
- (3) a minimum 6 foot wide clearance consisting of a Class A roof system around all roof top equipment and structures

Please note that the 3 requirements above would require a minimum 6 foot wide clearance around the roof top structure as well as all equipment on the roof without taking into consideration roofs having a small footprint. This requirement alone would eliminate many proposed rooftop garden designs on small rooftops in existing buildings. It also requires that existing roof assemblies (e.g., Class B – effective against moderate fire test exposure (see 1505.3) or Class C – effective against light fire test exposure (see 1505.4)) be upgraded to a Class A roof assembly that is effective against a severe fire test exposure. Again, no technical justification has been provided to justify requiring a minimum 6 foot wide clearance or the costs associated with providing Class A roof assemblies for all roof configurations having roof gardens or landscape roofs.

Public Comment 2:

Lawrence G. Perry, AIA, representing Building Owners and Managers Association (BOMA) International, requests Disapproval.

This proposal should be disapproved for the following reasons:

1. Neither 'rooftop gardens' nor 'landscaped roofs' are defined terms. This will lead to inconsistent interpretation and application of any code requirements. While the proposal sets maximum area limitations, it includes no minimum area triggers. Combining the lack of definitions and the lack of any minimum area trigger, a single plant in a pot could trigger compliance with this section.
2. There is no technical substantiation provided for the 6' minimum separation distance between the garden/landscaped areas and almost any roof element. As written, section 316.3 is unclear; it appears to be triggered if a roof has any combustible vertical surfaces, but then applies to all the listed roof elements, not just combustible ones. Additionally, a 6' perimeter around each of the listed roof elements would eliminate a significant portion of potential roof garden areas, with no clear explanation of the hazard being mitigated.
3. There is no justification to extend a standpipe to the roof for any building with a rooftop garden/landscaped roof. As written, this would apply to buildings not even required to have a stair that extends to the roof. In any case, a hose connection inside the building at the top floor level is better protected from both the day-to-day environment and the supposed conflagration hazard posed by rooftop plantings.
4. Requiring 'supplemental irrigation', supposedly to be approved by the fire department, makes no sense. As written, it provides no guidance, and will likely lead to interpretations mandating piped irrigation systems.
5. F9 provides adequate criteria for maintaining plant materials that may be provided on rooftops.

Final Action: AS AM AMPC_____ D

F10-09/10

401.6 (New)

Proposed Change as Submitted

Proponent: Michael Jacoby, Seven Valleys, PA, representing self

Add new text as follows:

401.6 Geographical locational information. A site's geographical location being the site's latitude / longitude coordinates centered on the structure, recorded in decimal for accuracy shall be entered as part of a site's official locational records, in plans and documents.

(Renumber subsequent sections)

Reason: By having accurate geographical locational information which is essential for emergency planning and preparedness to protect those within your communities that have families or loved ones with special needs and by using latitude and longitude coordinates centered on a facility at the time of construction that over time this will eliminate the continuing locational problems being found within mapping databases combined with confusion that you may encounter when Out-Of-Area-Assistance is required for emergencies.

Simply put... State Highway Numbers, Road Names and Postal Delivery Addresses even a community for industrial park may change its name but a site's set of latitude and longitude coordinates will always stay constant.

In other words if you've ever driven to a wrong location when using address numbers and road names etc. especially when every second counts you should immediately understand why this proposed change is so important.

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

ICCFILENAME: JACOBY-F1-401.6.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The committee felt that the proposal is a good concept but that it needs revision to center the location on the facility entrance and not the building itself which would be especially important for mutual aid companies. The proposal should also be specific as to how many decimal places the location description should be carried when recording it in records and what datum the location is taken to.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Michael Jacoby, Seven Valleys, PA, representing self, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

401.6 Geographical Locational Information. A site's geographical location being the site's set of latitude / longitude coordinates centered on a facility's entrance on the structure shall be done by a professional Registered Land Surveyor licensed by the appropriate governing authority using Datum-World Geodetic System (WGS84) recorded in decimal for accuracy degrees in a numeric format ± 1 m so that during inspections the fire code official will be able to verify that this lat/long locational information including the name of the surveyor is entered on the construction prints in the cover title block area and shall be entered as part of a site's official records in plans and documents. The responsibility and cost of having the professional Registered Land Surveyor's lat/long information/data recorded on the official site construction plans will be that of the developer/builder.

Commenter Reason: Having accurate geographical locational information which is essential for emergency planning and preparedness is key to protecting life and property of those within your communities, and... after listening to the committee's comments during the last hearing I agree, if we are going to do this right, lets make sure that the set of coordinates, being the location is centered on a facility's entrance and by using this more exact approach it will better benefit our mutual aid companies when Out-Of-Area-Assistance is required so... revisions were made to make it easier for Fire Code Officials at the same time we can now achieve a higher degree of accuracy than was originally proposed.

Since ICC IFC codes will be used worldwide the World Geodetic System (**WGS84**) will be used having the ability of achieving a geocentric globally consistent within ± 1 m

Also by using professional resources (**a Professional Registered Land Surveyor Licensed by the appropriate governing authority**) during construction this entrance point's locational information will be **their** responsibility thus assuring that the accuracy of this very important latitude/longitude locational data is now within tolerance.

In doing so, all that a Fire Code Official will have to do is verified that the **Professional Registered Land Surveyor's NAME with the SET OF COORDINATES required** are recorded on the official site construction plans within the cover sheet title block area, during inspections to be later recorded in records so that it can be quickly located during an emergency.

The responsibility including cost of making sure that the Professional Registered Land Surveyor's **NAME with their SET OF COORDINATES** lat/long data /information is on the prints will be that of the developer/builder.

To clarify: When **Professional Registered Land Surveyor** services are used **this will eliminate the need** for a Fire Code Official to purchase or carry a handheld GPS device as originally proposed, unless he or she would like to start double-checking locational coordinate data for **data verification purposes** at existing sites which **is not part of this proposal**, when it is discovered that the site's official coordinate data records being used in other database mapping systems is inaccurate, out-of-date or very misleading that could affect local public safety and planning.

Simply put... State Highway Numbers, Road Names and Postal Delivery Addresses even a community or industrial park may change its name but a site's set of latitude and longitude coordinates will always stay constant.

In other words if you've ever driven to a wrong location when using address numbers and road names etc. especially when every second counts you should immediately understand why this is so important.

BIBLIOGRAPHY

Surveyors Datum information in layman's terms

WGS84 [http://en.wikipedia.org/wiki/Datum_\(geodesy\)](http://en.wikipedia.org/wiki/Datum_(geodesy))

WGS84 <http://en.wikipedia.org/wiki/WGS84>

Cost Impact: The estimated cost should be from \$200-\$500 maybe less depending on atmospheric conditions at the time of collecting the lat/long data.

Final Action: AS AM AMPC____ D

F12-09/10

404.3.2

Proposed Change as Submitted

Proponent: Gregory J. Cahanin, Cahanin Fire & Code Consulting, representing the Michael Minger Foundation

Revise as follows:

404.3.2 Fire safety plans. Fire safety plans shall include the following:

1. The procedure for reporting a fire or other emergency.
2. The life safety strategy and procedures for notifying, relocating or evacuating occupants, including occupants who need assistance. Emphasis shall be given to identifying individuals with mobility and cognitive disabilities and integrating their special needs into fire safety plans.
3. Site plans indicating the following:
 - 3.1. The occupancy assembly point.
 - 3.2. The locations of fire hydrants.
 - 3.3. The normal routes of fire department vehicle access.
4. Floor plans identifying the locations of the following:
 - 4.1. Exits.
 - 4.2. Primary evacuation routes.
 - 4.3. Secondary evacuation routes.
 - 4.4. Accessible egress routes.
 - 4.5. Areas of refuge.
 - 4.6. Exterior areas for assisted rescue.
 - 4.7. Manual fire alarm boxes.
 - 4.8. Portable fire extinguishers.
 - 4.9. Occupant-use hose stations.
 - 4.10. Fire alarm annunciators and controls.
5. A list of major fire hazards associated with the normal use and occupancy of the premises, including maintenance and housekeeping procedures.
6. Identification and assignment of personnel responsible for maintenance of systems and equipment installed to prevent or control fires.
7. Identification and assignment of personnel responsible for maintenance, housekeeping and controlling fuel hazard sources.

Reason: Provisions for individuals with mobility disabilities are well established in the physical environment requirements of the IBC's Accessibility chapter. Once the building is constructed with the accessibility features the maintenance codes need to have requirements in place that recognize that movement of these individuals in an emergency has to be defined, planned, and communicated. We are also at a point of recognizing that individuals with cognitive disabilities may need additional education or notice of what to do in fire emergencies. This simple addition to the IFC (and the IPMC coordination if approved here) will prompt property owners and operators to consider the sometimes unique needs of the occupants in their buildings in an emergency. This simple requirement begins the dialog between occupants and building operators to help insure that when an emergency occurs everyone will have the opportunity to move safely to the outside. Proper egress planning lessens the burden of emergency personnel in providing rescue services while the suppression effort is ongoing.

The submittal of this proposal and several others with the ICC is part of the work of the Michael H. Minger Foundation, as a result of a Department of Homeland Security Fire Prevention and Safety Grant to study how colleges and universities respond to and provide for students with physical and learning disabilities in a fire event. The study identified model practices being used by campuses regarding fire safety, housing and evacuation policies and procedures. The proposed changes to the IPMC lay the foundation for uniform fire safety planning in the campus environment in a nationally recognized document while also establishing a clear base for egress planning and performance in all types of occupancies.

The Michael H. Minger Foundation was established in 2005. The purpose of the Foundation is to improve fire safety standards and enhance fire safety systems on college and university campuses and to educate parents and students and raise awareness of the reality and risk of campus fires. This non-profit organization was founded to honor the life of Michael H. Minger, an outstanding young man, who lost his life in a college dormitory fire. The Michael Minger Act in Kentucky established a requirement for fire sprinklers in college housing. A governor's task force focusing on campus safety in Kentucky was lead by Gail Minger, the director of the Michael H. Minger Foundation.

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

ICCFILENAME: CAHANIN-F2-404.3.2

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The committee generally felt that the current text adequately addresses occupants who might need assistance and that some occupants who need assistance might be overlooked by the limited application of the proposed text. It was also felt that it is unclear as to who is responsible to identify the specified special needs occupants and could place an undue burden on institutions to do so. Privacy issues in identifying such individuals was also noted as a concern.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Gregory J. Cahanin, Cahanin Fire & Code Consulting, representing Michael Minger Foundation, requests Approved as Modified by this public comment.

Modify the proposal as follows:

404.3.2 Fire safety plans. Fire safety plans shall include the following:

1. The procedure for reporting a fire or other emergency.
2. The life safety strategy and procedures for notifying, relocating or evacuating occupants, including occupants who need assistance. Emphasis shall be given to identifying individuals with mobility, sensory, and cognitive disabilities and integrating their special needs into fire safety plans.
3. through 7. *(No change to current text.)*

Commenter's Reason: Provisions for individuals with mobility disabilities are well established in the physical environment requirements of the IBC's Accessibility chapter. Individuals with sensory disabilities such as hearing and site are provided for in notification devices for fire and signage requirements for egress in Means of Egress. Occupants with cognitive disabilities are not addressed in fire safety plans at this time. Once the building is constructed the maintenance codes need to have requirements in place that recognize that movement of all individuals in an emergency has to be defined, planned, and communicated.

We are also at a point of recognizing that individuals with cognitive disabilities may need additional education or notice of what to do in fire emergencies. This simple addition to the IFC will prompt property owners and operators to consider the sometimes unique needs of the occupants in their buildings in an emergency. While there were committee members who thought that this change would add an unfair requirement upon property owners, they failed to recognize that we are only calling attention to the possible existence of groups with disabilities as a consideration. This simple requirement begins the dialog between occupants and building operators to help insure that when an emergency occurs everyone will have the opportunity to move safely to the outside. Proper egress planning lessens the burden of emergency personnel in providing rescue services while the suppression effort is ongoing.

The committee statement says, "It was also felt that it is unclear as to who is responsible to identify the specified special needs occupants and could place an undue burden on institutions to do so. Privacy issues in identifying such individuals was also noted as a concern." The change says simply to consider the needs of these special groups in developing a plan and add provisions during plan development in anticipation of an expressed need in the building. If the plan has specific educational indicators identified in the plan when it is completed the building owners can immediately provide proper access to individuals based upon the plans provisions already in place. It does not require the specific identification of an individual. There are multiple agencies nationally looking at ways to accommodate individuals and encourage their participation and that is not the role of the Fire Prevention Code. This change will only bring the Fire Prevention Code into the mainstream of considering all of the needs of the general public and does in fact make it more inclusive.

The submittal of this proposal and several others with the ICC is part of the work of the Michael H. Minger Foundation, as a result of a Department of Homeland Security Fire Prevention and Safety Grant to study how colleges and universities respond to and provide for students with physical and learning disabilities in a fire event. The study identified model practices being used by campuses regarding fire safety, housing and evacuation policies and procedures. The proposed changes to the IPMC lay the foundation for uniform fire safety planning in the campus environment in a nationally recognized document while also establishing a clear base for egress planning and performance in all types of occupancies.

The Michael H. Minger Foundation was established in 2005. The purpose of the Foundation is to improve fire safety standards and enhance fire safety systems on college and university campuses and to educate parents and students and raise awareness of the reality and risk of campus fires. This non-profit organization was founded to honor the life of Michael H. Minger, an outstanding young man, who lost his life in a college dormitory fire. The Michael Minger Act in Kentucky established a requirement for fire sprinklers in college housing. A governor's task force focusing on campus safety in Kentucky was lead by Gail Minger, the director of the Michael H. Minger Foundation.

Final Action: AS AM AMPC _____ D

F13-09/10
404.6 (New)

Proposed Change as Submitted

Proponent: Gregory J. Cahanin, Cahanin Fire & Code Consulting, representing the Michael Minger Foundation

Add new text as follows:

404.6 Posting of evacuation plan. A posted evacuation plan consisting of a floor plan layout indicating the available evacuation routes with identification of key emergency components, such as areas of rescue assistance, shall be provided near the main entry to the floor or building where access by the general public occurs in Group A-3, B and R-2 occupancies.

Reason: Within ANSI A17.1 for elevators there is now a requirement for 'in case of fire use stairs' placards to be posted at elevator call buttons and this proposal is a better detailed extension of that requirement document in that the posted plan will clearly define where the stairs and areas of rescue assistance are located. A companion proposal for a new 404.5.1 requires posting of egress paths from dorm rooms and this new section is an extension into public area notice.

The information provided on the plan will communicate the available means of egress to the occupants. It is also recognized that there is no specific form of education being provided to the general population related to the provisions being provided for accessibility in buildings. The evacuation plan can begin the educational process by identifying building provisions for egress in a public area.

The submittal of this proposal and several others with the ICC is part of the work of the Michael H. Minger Foundation, as a result of a Department of Homeland Security Fire Prevention and Safety Grant to study how colleges and universities respond to and provide for students with physical and learning disabilities in a fire event. The study identified model practices being used by campuses regarding fire safety, housing and evacuation policies and procedures. The proposed changes to the IPMC lay the foundation for uniform fire safety planning in the campus environment in a nationally recognized document while also establishing a clear base for egress planning and performance in all types of occupancies.

The Michael H. Minger Foundation was established in 2005. The purpose of the Foundation is to improve fire safety standards and enhance fire safety systems on college and university campuses and to educate parents and students and raise awareness of the reality and risk of campus fires. This non-profit organization was founded to honor the life of Michael H. Minger, an outstanding young man, who lost his life in a college dormitory fire. The Michael Minger Act in Kentucky established a requirement for fire sprinklers in college housing. A governor's task force focusing on campus safety in Kentucky was lead by Gail Minger, the director of the Michael H. Minger Foundation.

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

ICCFILENAME: CAHANIN-F1-404.6.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The committee felt that the proposal should be more specific as to the "key emergency components" mentioned and should be more specific as to where the plans should be posted. The proposed text would also conflict with Section 404.2 which already includes Group R-2 college and university buildings and also provides a much higher threshold for Group A and B occupancies.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Gregory J. Cahanin, Cahanin Fire & Code Consulting, representing Michael Minger Foundation, requests Approved as Modified by this public comment.

Modify the proposal as follows:

~~404.6 Posting of evacuation plan.~~ **404.5.1.1 College and university buildings.** A posted evacuation plan consisting of a floor plan layout indicating the available evacuation routes with identification of key emergency components, such as areas of rescue assistance, shall be provided near the main entry to the floor or building where access occurs in Groups A-3, and B and in Group R-2 college and university buildings occupancies.

Commenter's Reason: Based upon the committee's comments the original proposal has been relocated to become a subpart of fire safety plan distribution consistent with the reference to college and university buildings in 404.2. Section 404.2 only states where a fire safety and evacuation plan is to be prepared and maintained- not who has access to the plan.

The plan distribution requirements in 404.5.1 say tenants and building service personnel receive copies of the fire safety plan. For college and university campus buildings the student may not be either a tenant or campus personnel and needs to be informed and have access to the fire safety plan. A provision for its placement near the main entry to the floor or building provides the owners with a general area of placement for buildings where their lobby area may vary widely in geometry and a more restrictive requirement might be more difficult to enforce. For dormitory sleeping rooms there is a new requirement for the posting of evacuation egress plans on the back of dorm doors and this change complements that change in residence halls.

Within ANSI A17.1 for elevators there is now a requirement for 'in case of fire use stairs' placards to be posted at elevator call buttons and this proposal is a better detailed extension of that requirement document in that the posted plan will clearly define where the stairs and areas of rescue assistance are located.

The information provided on the plan will communicate the available means of egress to the occupants. It is also recognized that there is no specific form of education being provided to the general population related to the provisions being provided for accessibility in buildings. The evacuation plan can begin the educational process by identifying building provisions for egress in a public area. The submittal of this proposal and several others with the ICC is part of the work of the Michael H. Minger Foundation, as a result of a Department of Homeland Security Fire Prevention and Safety Grant to study how colleges and universities respond to and provide for students with physical and learning disabilities in a fire event. The study identified model practices being used by campuses regarding fire safety, housing and evacuation policies and procedures. The proposed changes to the IPMC lay the foundation for uniform fire safety planning in the campus environment in a nationally recognized document while also establishing a clear base for egress planning and performance in all types of occupancies.

The Michael H. Minger Foundation was established in 2005. The purpose of the Foundation is to improve fire safety standards and enhance fire safety systems on college and university campuses and to educate parents and students and raise awareness of the reality and risk of campus fires. This non-profit organization was founded to honor the life of Michael H. Minger, an outstanding young man, who lost his life in a college dormitory fire. The Michael Minger Act in Kentucky established a requirement for fire sprinklers in college housing. A governor's task force focusing on campus safety in Kentucky was lead by Gail Minger, the director of the Michael H. Minger Foundation.

Final Action: AS AM AMPC _____ D

F14-09/10

408.4 through 408.4.4 (New), Chapter 47, Appendix K (New)

Proposed Change as Submitted

Proponent: William Winslow, CIH, CFI, CMI, Winslow Partnership, representing self

1. Add new text as follows:

408.4 Group H occupancies and outdoor areas with hazardous materials. Group H occupancies and outdoor areas with hazardous materials shall comply with Sections 408.4.1 through 408.4.4 when such occupancies or facilities are required by 40CFR, Section 68.130 to have a Risk Management Plan (RMP). See Appendix K for further information on chemicals and threshold quantities that require a RMP.

408.4.1 Emergency response plan. An emergency response plan describing procedures for mitigating an unintentional chemical release shall be prepared prior to occupancy. A copy of the plan shall be maintained on-site, and upon request, a copy of the plan shall be provided to the fire code official for approval.

408.4.2 Training. Employees who are designated as emergency responders shall be trained to perform duties assigned in the Emergency Response Plan. Training criteria shall be provided in the Emergency Response Plan.

408.4.3 Equipment. Equipment and supplies specified in the Emergency Response Plan for use in the event of an unintentional chemical release shall be maintained on-site or shall be available for delivery to the site as specified in the plan.

408.4.4 Emergency drill. When required by the fire code official, an annual drill shall be conducted to practice the Emergency Response Plan. The fire code official shall be notified of the date and time of a scheduled drill not less than sixty days prior to the event. When an emergency drill identifies deficiencies in the Emergency Response Plan, the plan shall be updated to correct noted deficiencies.

2. Add new standard to Chapter 47 as follows:

EPA

40 CFR, Part 68 Subparts F and G – 2000

Chemical Accident Prevention Provisions - Regulated Substances for Accidental Release Prevention and Risk Management Plan

3. Add new Appendix K as follows:

(Underlining in the body of the substances tables omitted for clarity)

APPENDIX K
HAZARDOUS MATERIALS AND THRESHOLD QUANTITIES FOR EMERGENCY RESPONSE PLANNING

This appendix is for informational purposes and is not intended for adoption.

SECTION K101
GENERAL

K101.1 Scope. The *International Fire Code*, Section 408.4 establishes requirements for Group H-1, H-2, H-3 and H-4 occupancies and outdoor facilities to have an emergency response plan when threshold quantities for certain chemicals are exceeded. Section 408.4 intends for the emergency response planning requirements, including the list of applicable chemicals and threshold quantities, to:

1. Remain consistent with the U.S. Environmental Protection Agency's (EPA) Risk Management Plan (RMP) filing thresholds specified in Title 40, Section 68.130 of the Code of Federal Regulations, and
2. Remain consistent with the regulations for facilities requiring a RMP, as specified in Section 112(r) of the Clean Air Act.

Table K101(1) and Table K101(2) provide EPA's threshold quantities for regulated chemicals as of January 1, 2009. This information is provided as a reference for application of Section 408.4, but because the list of applicable chemicals and quantities under Federal law may change over time, it is recommended that the source Federal documents be consulted for the most up-to-date information when applying the code.

TABLE K101(1)
LIST OF REGULATED TOXIC SUBSTANCES AND THRESHOLD QUANTITIES
FOR ACCIDENTAL RELEASE PREVENTION

(Source: 40CFR, Part 68, Sec. 68.130; Revised as of July 1, 2000)

(The font for the 2 tables was left as submitted due to technical difficulties in formatting)

Chemical name	CAS No.	Threshold quantity (lbs)
Acrolein [2-Propenal].....	107-02-8	5,000
Acrylonitrile [2-Propenenitrile].	107-13-1	20,000
Acrylyl chloride [2-Propenoyl chloride].	814-68-6	5,000
Allyl alcohol [2-Propen-1-ol]..	107-18-61	15,000
Allylamine [2-Propen-1-amine]..	107-11-9	10,000
Ammonia (anhydrous).....	7664-41-7	10,000
Ammonia (conc 20% or greater)..	7664-41-7	20,000
Arsenous trichloride.....	7784-34-1	15,000
Arsine.....	7784-42-1	1,000
Boron trichloride [Borane, trichloro-].	10294-34-5	5,000
Boron trifluoride [Borane, trifluoro-].	7637-07-2	5,000
Boron trifluoride compound with methyl ether (1:1) [Boron, trifluoro [oxybis [metane]]-, T-4-.	353-42-4	15,000
Bromine.....	7726-95-6	10,000
Carbon disulfide.....	75-15-0	20,000
Chlorine.....	7782-50-5	2,500

Chlorine dioxide [Chlorine oxide (ClO ₂)].	10049-04-4	1,000
Chloroform [Methane, trichloro-].	67-66-3	20,000
Chloromethyl ether [Methane, oxybis[chloro-].	542-88-1	1,000
Chloromethyl methyl ether [Methane, chloromethoxy-].	107-30-2	5,000
Crotonaldehyde [2-Butenal].....	4170-30-3	20,000
Crotonaldehyde, (E)- [2-Butenal, (E)-].	123-73-9	20,000
Cyanogen chloride.....	506-77-4	10,000
Cyclohexylamine [Cyclohexanamine].	108-91-8	15,000
Diborane.....	19287-45-7	2,500
Dimethyldichlorosilane [Silane, dichlorodimethyl-].	75-78-5	5,000
1,1-Dimethylhydrazine [Hydrazine, 1,1-dimethyl-].	57-14-7	15,000
Epichlorohydrin [Oxirane, (chloromethyl)-].	106-89-8	20,000
Ethylenediamine [1,2-Ethanediamine].	107-15-3	20,000
Ethyleneimine [Aziridine].....	151-56-4	10,000
Ethylene oxide [Oxirane].....	75-21-8	10,000
Fluorine.....	7782-41-4	1,000
Formaldehyde (solution).....	50-00-0	15,000
Furan.....	110-00-9	5,000
Hydrazine.....	302-01-2	15,000
Hydrochloric acid (conc 37% or greater).	7647-01-0	15,000
Hydrocyanic acid.....	74-90-8	2,500
Hydrogen chloride (anhydrous) [Hydrochloric acid].	7647-01-0	5,000
Hydrogen fluoride/Hydrofluoric acid (conc 50% or greater) [Hydrofluoric acid].	7664-39-3	1,000
Hydrogen selenide.....	7783-07-5	500
Hydrogen sulfide.....	7783-06-4	10,000
Iron, pentacarbonyl- [Iron carbonyl (Fe(CO) ₅), (TB-5-11)-].	13463-40-6	2,500
Isobutyronitrile [Propanenitrile, 2-methyl-].	78-82-0	20,000
Isopropyl chloroformate [Carbonochloridic acid, 1-methylethyl ester].	108-23-6	15,000
Methacrylonitrile [2-Propenenitrile, 2-methyl-].	126-98-7	10,000
Methyl chloride [Methane, chloro-].	74-87-3	10,000
Methyl chloroformate [Carbonochloridic acid, methylester].	79-22-1	5,000
Methyl hydrazine [Hydrazine, methyl-].	60-34-4	15,000
Methyl isocyanate [Methane, isocyanato-].	624-83-9	10,000
Methyl mercaptan [Methanethiol]	74-93-1	10,000
Methyl thiocyanate [Thiocyanic acid, methyl ester].	556-64-9	20,000

Methyltrichlorosilane [Silane, trichloromethyl-].	75-79-6	5,000
Nickel carbonyl.....	13463-39-3	1,000
Nitric acid (conc 80% or greater).	7697-37-2	15,000
Nitric oxide [Nitrogen oxide (NO)].	10102-43-9	10,000
Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide] \1\.	8014-95-7	10,000
Peracetic acid [Ethaneperoxoic acid].	79-21-0	10,000
Perchloromethylmercaptan [Methanesulphenyl chloride, trichloro-].	594-42-3	10,000
Phosgene [Carbonic dichloride].	75-44-5	500
Phosphine.....	7803-51-2	5,000
Phosphorus oxychloride [Phosphoryl chloride].	10025-87-3	5,000
Phosphorus trichloride [Phosphorous trichloride].	7719-12-2	15,000
Piperidine.....	110-89-4	15,000
Propionitrile [Propanenitrile].	107-12-0	10,000
Propyl chloroformate [Carbonochloridic acid, propylester].	109-61-5	15,000
Propyleneimine [Aziridine, 2-methyl-].	75-55-8	10,000
Propylene oxide [Oxirane, methyl-].	75-56-9	10,000
Sulfur dioxide (anhydrous).....	7446-09-5	5,000
Sulfur tetrafluoride [Sulfur fluoride (SF4), (T-4)-].	7783-60-0	2,500
Sulfur trioxide.....	7446-11-9	10,000
Tetramethyllead [Plumbane, tetramethyl-].	75-74-1	10,000
Tetranitromethane [Methane, tetranitro-].	509-14-8	10,000
Titanium tetrachloride [Titanium chloride (TiCl4) (T-4)-].	7550-45-0	2,500
Toluene 2,4-diisocyanate [Benzene, 2,4-diisocyanato-1-methyl-] \1\.	584-84-9	10,000
Toluene 2,6-diisocyanate [Benzene, 1,3-diisocyanato-2-methyl-] \1\.	91-08-7	10,000
Toluene diisocyanate (unspecified isomer) [Benzene, 1,3-diisocyanatomethyl-] \1\.	26471-62-5	10,000
Trimethylchlorosilane [Silane, chlorotrimethyl-].	75-77-4	10,000
Vinyl acetate monomer [Acetic acid ethenyl ester].	108-05-4	15,000

TABLE K101(2)
FLAMMABLE SUBSTANCES AND THRESHOLD QUANTITIES FOR ACCIDENTAL RELEASE PREVENTION¹
(Source: 40CFR, Part 68, Sec. 68.130; Revised as of July 1, 2000)

Chemical name	CAS No.	Threshold quantity (lbs)
Acetaldehyde.....	75-07-0	10,000
Acetylene [Ethyne].....	74-86-2	10,000
Bromotrifluorethylene [Ethene, bromotrifluoro-].	598-73-2	10,000
1,3-Butadiene.....	106-99-0	10,000
Butane.....	106-97-8	10,000
1-Butene.....	106-98-9	10,000
2-Butene.....	107-01-7	10,000
Butene.....	25167-67-3	10,000
2-Butene-cis.....	590-18-1	10,000
2-Butene-trans [2-Butene, (E)].	624-64-6	10,000
Carbon oxysulfide [Carbon oxide sulfide (COS)].	463-58-1	10,000
Chlorine monoxide [Chlorine oxide].	7791-21-1	10,000
2-Chloropropylene [1-Propene, 2-chloro-].	557-98-2	10,000
1-Chloropropylene [1-Propene, 1-chloro-].	590-21-6	10,000
Cyanogen [Ethanedinitrile]....	460-19-5	10,000
Cyclopropane.....	75-19-4	10,000
Dichlorosilane [Silane, dichloro-].	4109-96-0	10,000
Difluoroethane [Ethane, 1,1-difluoro-].	75-37-6	10,000
Dimethylamine [Methanamine, N-methyl-].	124-40-3	10,000
2,2-Dimethylpropane [Propane, 2,2-dimethyl-].	463-82-1	10,000
Ethane.....	74-84-0	10,000
Ethyl acetylene [1-Butyne]....	107-00-6	10,000
Ethylamine [Ethanamine].....	75-04-7	10,000
Ethyl chloride [Ethane, chloro-].	75-00-3	10,000
Ethylene [Ethene].....	74-85-1	10,000
Ethyl ether [Ethane, 1,1'-oxybis-].	60-29-7	10,000
Ethyl mercaptan [Ethanethiol]..	75-08-1	10,000
Ethyl nitrite [Nitrous acid, ethyl ester].	109-95-5	10,000
Hydrogen.....	1333-74-0	10,000
Isobutane [Propane, 2-methyl]..	75-28-5	10,000
Isopentane [Butane, 2-methyl-].	78-78-4	10,000
Isoprene [1,3-Butadinene, 2-methyl-].	78-79-5	10,000
Isopropylamine [2-Propanamine].	75-31-0	10,000
Isopropyl chloride [Propane, 2-chloro-].	75-29-6	10,000
Methane.....	74-82-8	10,000
Methylamine [Methanamine].....	74-89-5	10,000
3-Methyl-1-butene.....	563-45-1	10,000
2-Methyl-1-butene.....	563-46-2	10,000
Methyl ether [Methane, oxybis-]	115-10-6	10,000

Methyl formate [Formic acid, methyl ester].	107-31-3	10,000
2-Methylpropene [1-Propene, 2-methyl-].	115-11-7	10,000
1,3-Pentadinene.....	504-60-9	10,000
Pentane.....	109-66-0	10,000
1-Pentene.....	109-67-1	10,000
2-Pentene, (E)-.....	646-04-8	10,000
2-Pentene, (Z)-.....	627-20-3	10,000
Propadiene [1,2-Propadiene]....	463-49-0	10,000
Propane.....	74-98-6	10,000
Propylene [1-Propene].....	115-07-1	10,000
Propyne [1-Propyne].....	74-99-7	10,000
Silane.....	7803-62-5	10,000
Tetrafluoroethylene [Ethene, tetrafluoro-].	116-14-3	10,000
Tetramethylsilane [Silane, tetramethyl-].	75-76-3	10,000
Trichlorosilane [Silane, trichloro-].	10025-78-2	10,000
Trifluorochloroethylene [Ethene, chlorotrifluoro-].	79-38-9	10,000
Trimethylamine [Methanamine, N,N-dimethyl-].	75-50-3	10,000
Vinyl acetylene [1-Buten-3-yne]	689-97-4	10,000
Vinyl chloride [Ethene, chloro-].	75-01-4	10,000
Vinyl ethyl ether [Ethene, ethoxy-].	109-92-2	10,000
Vinyl fluoride [Ethene, fluoro-].	75-02-5	10,000
Vinylidene chloride [Ethene, 1,1-dichloro-].	75-35-4	10,000
Vinylidene fluoride [Ethene, 1,1-difluoro-].	75-38-7	10,000
Vinyl methyl ether [Ethene, methoxy-].	107-25-5	10,000

¹A flammable substance when used as a fuel or held for sale as a fuel at a retail facility is excluded from all provisions of 40CFR, Part 68.

Reason: Dalton, Georgia, April 11, 2006 - A final report issued by the U.S. Chemical Safety and Hazard Investigation Board (CSB) concluded inadequate emergency planning by the facility, city, and county contributed to the severity of a runaway chemical reaction and toxic vapor cloud release at MFG Chemical Inc. One problem is that emergency plans required under CCA 112(r) and other federal regulations do not have to be approved by the FCO and do not require periodic drills. This code change will allow the FCO to require emergency planning, training, and drills that meet the needs of the fire department for facilities with hazardous materials that exceed the threshold quantity for risk management planning found in CCA 112(r). It will also ensure that the FCO has the authority to require the plan be written and implemented before a new facility begins operation. The provision for approval by the FCO is in agreement with NFPA 600, which applies to any organized, private, industrial group of employees having fire-fighting response duties, such as emergency brigades, emergency response teams, fire teams, and plant emergency organizations. Section 1.3.2 of NFPA 600 states, "The authority having jurisdiction shall be permitted to examine and approve organization, operations, training". The 60 day notification of an upcoming drill will provide the time necessary for the fire department to include the drill in its training schedule.

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

Analysis: A review of the standard(s) proposed for inclusion in the code, 40 CFR, Part 68 Subparts F and G – 2000, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

Public Hearing Results

Note: The following analysis was not in the Code Change monograph but was published on the ICC website at <http://www.iccsafe.org/cs/codes/Documents/2009-10cycle/ProposedChanges/Standards-Analysis.pdf> :

Analysis: Review of the proposed new standard EPA 40 CFR, Part 68, Subparts F and G - 2000 indicated that, in the opinion of ICC staff, the standard did not comply with ICC standards criteria, Section 3.6.3.2.

Committee Action:

Disapproved

Committee Reason: The committee felt that the proposal would put the fire code official in the position of approving a federally-mandated document which the committee felt was inappropriate. It was also noted as unclear as to what, if any, action the fire code official might need to take upon notification required by Section 408.4.4 and who would be responsible for identifying any deficiencies. The classification of some materials listed in the tables were also noted as not being compatible with the material definitions in the IFC.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

William Winslow, Winslow Partnership, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

~~408.4 Group H occupancies and outdoor areas with hazardous materials. Group H occupancies and outdoor areas with hazardous materials shall comply with Sections 408.4.1 through 408.4.4 when such occupancies or facilities are required by 40CFR, Section 68.130 to have a Risk Management Plan (RMP). See Appendix K for further information on chemicals and threshold quantities that require a RMP. Facilities with one or more Group H occupancies or with an outdoor area containing hazardous materials in amounts that exceed the maximum allowable quantity per outdoor control area shall comply with Sections 408.4.1 through 408.4.4.~~

Exceptions:

1. Group H occupancies and outdoor areas where storage and use is limited to materials with a NFPA 704 rating of less than 3.
2. Facilities where the total amount of hazardous materials with an NFPA rating of 3 or 4 in outdoor areas and H occupancies does not exceed a combined weight of 50,000 pounds.
3. Group H-5 occupancies and indoor and outdoor HPM storage rooms and areas shall comply with 408.5.

408.4.1 Emergency response plan. An emergency response plan describing procedures for mitigating an unintentional chemical release shall be prepared prior to occupancy ~~or, for existing facilities, within 90 days of written notification by the fire code official.~~ A copy of the plan shall be maintained on-site, and upon request, a copy of the plan shall be provided to the fire code official for approval.

408.4.2 Training. Employees who are designated as emergency responders shall be trained to perform duties assigned in the Emergency Response Plan. Training criteria shall be provided in the Emergency Response Plan.

408.4.3 Equipment. Equipment and supplies specified in the Emergency Response Plan for use in the event of an unintentional chemical release shall be maintained on-site or shall be available for delivery to the site as specified in the plan.

408.4.4 Emergency drill. When required by the fire code official, an annual drill shall be conducted to practice the Emergency Response Plan. The fire code official shall be notified of the date and time of a scheduled drill not less than 14 days prior to the event. When an emergency drill identifies deficiencies in the Emergency Response Plan, the plan shall be updated to correct noted deficiencies.

EPA

40 CFR, Part 68 Subparts F and G—2000

~~Chemical Accident Prevention Provisions—Regulated Substances for
Accidental Release Prevention and Risk Management Plan~~

APPENDIX K

~~HAZARDOUS MATERIALS AND THRESHOLD QUANTITIES FOR EMERGENCY RESPONSE PLANNING~~

(Delete entire Appendix K without substitution)

Committer's Reason: The purpose of this proposal is to add a requirement in the fire code for emergency response planning and training at facilities with large quantities of NFPA hazard class 3 and 4 materials. We can't require compliance with federal regulations, so we need our own tool. Also, the federal regulations may require an emergency plan, but they don't require training to implement the plan. To minimize the burden on small businesses, there are a number of exceptions, including for facilities where the total amount of hazard class 3 and 4 materials is less than 50,000 pounds (5,000 gallons). I don't think there is any disagreement that it is safer for the fire department to respond to a hazmat incident if the facility's staff has an emergency response plan, which it is trained and equipped to implement. Help improve the safety of hazmat emergency responders by overturning the committee's disapproval of this proposal, and vote for Approval as Modified by this Public Comment.

In the reason given for disapproval, the committee was concerned about the incorporation of federal requirements in the original proposal. As a result, all references to federal requirements were removed. Also the semiconductor industry was concerned about HPM facilities. So, in the exceptions there is a clarification that Group H-5 occupancies and indoor and outdoor HPM storage rooms and areas shall comply with 408.5.

Final Action: AS AM AMPC___ D

F16-09/10
503.2.2.1 (New)

Proposed Change as Submitted

Proponent: Carl D. Wren, Fire Department, City of Austin, TX, representing self

Add new text as follows:

503.2.2.1 Decrease in width. The fire code official shall have the authority to approve a decrease in the minimum access width. In evaluating reduced access widths, the fire code official shall consider traffic safety issues, maximum building heights, fixed fire suppression systems, the degree of street interconnections, and the adequacy of turning radii. When necessary to demonstrate compliance, the fire code official may require technical assistance provided by traffic safety professionals as well as fire safety professionals in accordance with Section 104.7.2.

Reason: For a number of years the fire service has been exploring strategic partnerships for reducing the overall risk to our communities from a variety of hazards rather than restricting its efforts to simply reducing deaths and injuries from fire related emergencies. This effort is evident in the objectives of the National Fire Academy Course "Strategies for Community Risk Reduction" and its predecessor course "Strategic Analysis of Community Risk Reduction" as well as in the NFPA "Risk Watch" program. With this general idea of overall risk to the community and a specific consideration of the potential for reducing traffic injuries and fatalities in mind, it may often be advantageous to plan for traffic calming during the site plan or subdivision design phases of a project and for the fire code official to be able to choose to accept a design with narrower but significantly interconnected streets over the potential for the jurisdiction to attempt the installation of traffic calming measures as an afterthought, or over the use of cul-de-sacs or other dead-ends with forced turnaround situations.

While the issue of environmental quality is not a goal or objective directly attributed to the fire code, environmental improvements have been a by-product of code development issues such as handling and storing hazardous materials. The EPA has also weighed in on the issue of authority to consider alternate roadway designs and has cited at least two (2) potential benefits of giving fire officials the clear authority to consider and potentially to approve narrower streets in some circumstances. First, representatives of the EPA have noted their position that interconnected narrower streets support more pedestrian friendly cities or neighborhoods and can therefore result in reduced vehicle miles traveled and an attendant reduction in carbon emissions. Second, they have noted that they support this approach as a way to give opportunity to consider and possibly use low-impact development (LID) techniques or green infrastructure for storm water treatment. They believe this will reduce the quantity and improve the quality of storm water runoff.

Finally, this proposal simply clarifies and makes explicit what the proponent considers to be a currently implied authority under IFC sections 104.8, 104.9 and 503.1.2. It affords an opportunity to give developers credit for reduced fire risks due to fire sprinkler protection and acknowledges that there is a potential for major reductions in traffic casualties for well thought out narrow street configurations. Further information on the potential impact of street widths on traffic related injuries can be obtained through a 1997 study by Peter Swift et al that is currently being peer reviewed.

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

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: While the committee recognizes the issues surrounding the proposal, it felt that having the width reduction highlighted in a specific section as proposed could be used against the fire code official in reviewing site plan documents for adequate fire apparatus access. It was suggested that it might be more effective to revise current Section 503.2.2 to give the fire code official the authority to modify the width of fire apparatus access roads without specifying whether it is to increase or to decrease the width. It was also noted that the proposal includes a "laundry list" of things to consider when modifying the width, albeit an incomplete one. Such a list should be better located in the commentary and expanded to include, but not be limited to, consideration of building construction type, wildland-urban interface areas, terrain characteristics and the specific characteristics of fire apparatus. The committee also expressed its preference for code change F17-09/10 to establish needed dialogue regarding fire apparatus road design issues versus traffic safety issues.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Page Dougherty representing self, and Carl D. Wren, Austin, TX Fire Department, representing self, request Approval as Modified by this Public Comment.

Modify the proposal as follows:

~~503.2.2 Authority. The fire chief code official shall have the authority to modify require an increase in the minimum access widths needed where they are inadequate for fire or rescue operations. When necessary to demonstrate compliance, the fire code official is authorized to require technical assistance provided by traffic safety professionals as well as fire safety professionals in accordance with Section 104.7.2.~~

~~**503.2.2.1 Decrease in width.** The fire code official shall have the authority to approve a decrease in the minimum apparatus access width. In evaluating reduced access widths, the fire code official shall consider traffic safety issues, maximum building heights, fixed fire suppression systems, the degree of street interconnections, and the adequacy of turning radii. When necessary to demonstrate compliance, the fire code official may require technical assistance provided by traffic safety professionals as well as fire safety professionals in accordance with Section 104.7.2.~~

Commenter's Reason (Dougherty): Per the direction of the committee in its reasoning as shown in the Report of the Hearings, this modification of the proposal moves the revision concept into Section 503.2.2 and changes the text to a more general term. The proposed change in this public comment generalizes the authority to allow the fire chief the ability to approve an increase or decrease in fire apparatus access roads and fire lanes. The approval may be determined by the conditions of a proposal, based on fire department access needs in the area and any practical conditions that may affect the area such as topography and any special construction conditions or additional fire protection features to offset access issues. This proposal clarifies the intent of the code as it applies to the fire chief's authority in these cases.

This proposal initially was to allow a decrease in the width for fire apparatus access. However, as was pointed out by one committee member pointed out in his reasoning that sometimes the minimums don't work and a larger turn radius or other feature of the intersection needs to be altered to allow fire apparatus access to an area. It should also be noted that fire departments have allowed decreases in access widths based on topographical and other practical difficulties as allowed in the legacy codes.

I urge the membership to support this Public Comment by voting for the item to be approved as modified by the Public Comment

Commenter's Reason (Wren): As the original submitter, I am trying to follow the direction of the committee in their reason statement as recorded in the Report of the Hearings. This modification of the proposal moves the revision concept into Section 503.2.2 and changes the text to be more general in its application. The proposed change in this public comment gives more latitude to the authority having jurisdiction (AHJ), allowing the fire chief the ability to approve an increase or a decrease in width for fire apparatus access roads and fire lanes when building and/or site conditions and installed protection, or a lack of installed protection, warrant the change. The approval may be determined by the specific conditions of a project or building based on fire department access needs in the area and any practical conditions that may affect the area. Conditions that have been traditionally recognized as having the potential to affect access (specifically access distance in 503.1.1) include topography, nonnegotiable grades, building location on the property, and any special construction conditions as well as additional fire protection features proposed in order to offset access issues. This proposal clarifies the intent of the code as it applies to the fire chief's authority in those cases that specifically deal with access width. My comment mirrors a public comment developed by Mr. Page Dougherty.

I urge the membership to support this Public Comment by voting for the item to be approved as modified by the Public Comment.

Public Comment 2:

John Norquist, representing Congress for the New Urbanism, requests Approval as Submitted.

Commenter's Reason: The language proposed in F16 poses no threat to fire code officials. It provides and makes explicit a measure of flexibility not currently present: Fire marshals can approve widths of less than 20 feet clear when factors including – but not limited to those listed in the proposed language – are considered, but are not required to do so. This is not a laundry list, but examples of factors that should be considered. In itself, this language contains the flexibility necessary for appropriate consideration of local conditions and situations.

The key passage, "The fire code official shall have the authority..." is permissive, not prescriptive. Hypothetically, even if it were phrased "The fire code official *has* the authority..." the language remains permissive; one doesn't have to use that authority if he or she determines circumstances won't allow it. If this flexibility were already in the code, this issue would not have arisen.

If such flexibility is already in the code but incomplete, then the language of F16 fills the gap. Good street designs take into account factors like turning radii, hydrant placement and staging area needs. Modern apparatus has evolved to fit wider streets; it can evolve again. A case in point: the Milwaukee, (Wis.) Fire Department demanded that a custom builder manufacture appropriately sized apparatus, and got them.

Final Action: AS AM AMPC____ D

Proposed Change as Submitted

Proponent: Tom Lariviere, Chairman, Joint Fire Service Review Committee

Add new text as follows:

503.4.1. Traffic calming devices. Traffic calming devices are prohibited unless approved by the *fire code official*.

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

TRAFFIC CALMING DEVICES. Traffic calming devices are design elements of fire apparatus access roads such as street alignment, installation of barriers, and other physical measures intended to reduce traffic and cut-through volumes, and slow vehicle speeds.

Reason: Many communities are facing increased traffic volumes. Both new and existing streets are experiencing higher vehicular volumes and speeds as drivers attempt to find "short cuts" to ease their commutes. Designers, planning departments and traffic departments are increasingly turning to traffic calming measures to preserve the quality and enjoyment of life for their citizens.

A key interest of all emergency services is to provide timely response to emergencies. Traffic calming devices can unduly delay and result in damage to emergency apparatus. This proposed language will allow fire officials to restrict traffic calming devices to those that will minimize these problems.

Standard emergency medical service response times are based on 4-6 minutes. This time frame is based on the fact that brain damage resulting from cardiac arrest typically occurs within 4-6 minutes. Delaying, or extending, these response times in any fashion places the public at greater risk.

Traffic officials and fire officials both have the responsibility to ensure that public interests are properly considered in their decision-making process. Both sets of officials have detailed regulations to provide for those interests.

This proposal requires approval of traffic calming measures by the fire code official. What it doesn't do is detail how that approval is to be made within various jurisdictions. Each jurisdiction has their own traffic pattern emergency response challenges. The purpose of this proposal is to ensure that the fire department is part of this decision-making process. This proposal requires approval of traffic calming measures in private fire access roads and public roads.

Many traffic calming designs include various road configurations that delay, or even restrict, fire apparatus access. Such items may include "roundabouts", speed humps, narrowing of streets, winding roads rather than straight roads, etc. All of these items slow the response time of any emergency response vehicle whether it be law enforcement, medical services, or fire.

The definition for traffic calming is based on the definition provided by the Institute of Transportation Engineers.

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

ICCFILENAME: LARIVIERE-F5-504.3.1.DOC

Public Hearing Results

Committee Action:

Approved as Submitted

Committee Reason: The committee agreed with the proponent's reason statement and felt that approval of this proposal would be an important first step in establishing needed critical dialogue with urban traffic planning officials so that both fire departments and traffic planners come to understand and respect one another's viewpoints and needs regarding the need for traffic calming devices. The committee recognized the need to provide better speed control for increased safety but emphasized that features which impede or, possibly, prevent emergency vehicle response create a serious public safety hazard. The committee also noted that the prohibitive language of this proposal ("Traffic calming devices are *prohibited...*") does not lend itself to the kind of co-operation between agencies that is essential to this discussion and suggested a public comment be submitted to make the language more approval-oriented.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

John Norquist representing Congress for the New Urbanism, requests Disapproval.

Commenter's Reason: F17 overreaches and will create more friction between the fire service and traffic engineers and municipal planners, not less. Nor will it spark constructive dialog. As written, F17 and its definitions of traffic calming are so broad in scope that by making the fire code official the final judge of street and traffic design, and therefore traffic engineering, it effectively turns fire code officials into *de facto* traffic engineers. Do fire code officials have the background and training to do traffic engineering on top of their current duties? Do they want to be traffic engineers? Will they consider the potential liability stemming from a traffic engineering decision made by someone who is not a qualified traffic engineer?

CNU understands that the intent here is to give fire code officials a seat at the street design table. CNU has been actively engaged in pursuing and creating the very kind of dialog sought by the IFC. But F17 will not create that seat in a positive atmosphere because is the equivalent of jumping up on the table. The decision to approve it should be overturned.

Public Comment 2:

Lawrence G. Perry, AIA, representing Building Owners and Managers Association (BOMA) International, requests Disapproval.

Commenter's Reason: This proposal should be disapproved for the following reasons:

1. "The fire code official shall review and approve all newly proposed traffic calming devices, and shall review and either approve, or require the removal of, every existing traffic calming device in the jurisdiction." This is essentially what the approved language says.
2. Neither the proponents reason statement nor testimony provided any explanation as to how this would be implemented. Rather, the proponents and the committee spoke of how this new code requirement could be used to open a 'dialogue' between the fire service and the traffic planners of a jurisdiction. Code requirements should not ever be written to 'open a dialogue' between agencies of a local jurisdiction. The local fire service would be better served by directly working with their local cohorts from the traffic division, than by creating unrealistic code provisions.
3. The proposed definition of 'Traffic Calming Devices' is so broad as to capture all kinds of elements that would never be appropriate to be regulated outside of the local traffic code. Alignment of streets? The 2012 edition of the IFC will prohibit alignment of streets that calm traffic? That's what the approved language says.
4. If approved as proposed, the 2012 edition of the IFC will likely create thousands of code violations upon adoption in any jurisdiction, and provides no mechanism for how the fire service would assess each proposed and existing 'device', or what criteria would be used to assess each 'device'.

Final Action: AS AM AMPC____ D

F20-09/10, Part I

506.3 (New)

NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART II IS REPRODUCED ONLY FOR INFORMATIONAL PURPOSES FOLLOWING ALL OF PART I.

Proposed Change as Submitted

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

PART I – IFC

Revise section title and add new text as follows:

SECTION 506 **KEY BOXES AND FIRE SERVICE ELEVATOR KEYS**

506.3 Standardized fire service elevator keys. All buildings with elevators equipped with Phase I Emergency Recall, Phase II emergency in-car operation, or a Fire Service Access Elevator shall be equipped to operate with a standardized fire service elevator key approved by the fire code official.

Exception: Where there is a practical difficulty to providing a standardized key the owner shall place the building's non-standardized fire service elevator keys in a key box installed in accordance with Section 506.1.

506.3.1 Requirements for standardized fire service elevator keys. Standardized fire service elevator keys shall comply with all of the following:

1. All fire service elevator keys within the jurisdiction shall be uniform and specific for the jurisdiction. Keys shall be cut to a uniform key code.
2. Fire service elevator keys shall be a patent protected design to prevent unauthorized duplication.
3. Fire service elevator keys shall be factory restricted by the manufacturer to prevent the unauthorized distribution of key blanks. No uncut key blanks shall be permitted to leave the factory
4. Fire service elevator keys subject to these rules shall be engraved with the words "DO NOT DUPLICATE".

506.3.2 Access to standardized fire service keys. Access to standardized fire service elevator keys shall be restricted to the following:

1. Elevator owners or their authorized agents;
2. Elevator contractors.
3. Elevator Inspectors of the jurisdiction.
4. Fire code officials of the jurisdiction.
5. The fire department and other emergency response agencies designated by the fire code official.

506.3.3 Duplication or distribution of keys. No person may duplicate a standardized fire service elevator key or issue, give, or sell a duplicated key unless in accordance with this code.

506.3.4 Responsibility to provide keys. The building owner shall provide up to three (3) standardized fire service elevator keys where required by the fire code official, upon installation of a standardized fire service key switch or switches in the building.

Reason: When fire departments and other public agencies respond to emergencies the ability to quickly access the location of the emergency can be the deciding factor of a successful response. Elevators are increasingly being relied upon for emergency operations and their importance has been highlighted by recent additions to the International Building Code requiring the installation of fire service access elevators and providing requirements for the installation of occupant evacuation elevators.

One of the difficulties the fire service and other emergency response agencies have when accessing facilities and attempting to use elevators is the increasing number of non-standardized keys which may not be available at the time of response. Even when emergency responders are provided the necessary keys in case of response, the correct key may have to be identified from a large collection of keys for any one building. In larger jurisdictions the sheer number of keys makes the possession of the keys unwieldy for the emergency responders.

The purpose Part 1 of this proposal is to provide for a standardized fire service elevator key to reduce the number of keys necessary for accessing elevators in an emergency. As drafted this section will only apply to those buildings that have elevators with Phase I or Phase II emergency service or to those buildings with a fire service access elevator.

The proposal also provides for a level of security for the standardized key. Access to the key that can take control of an elevator is an existing area of vulnerability for buildings and one that was not addressed in the past with simple key designs being utilized. Since this proposal will create a standardized key, it also includes rules for the safeguarding of that key.

Part 2 of this proposal is included to simply place a pointer in the International Building Code should the International Fire Code Committee approve Part 1 of this proposal.

Because the International Codes are written to enable jurisdictions to adopt the codes at the State, Local or Regional levels the proposal follows that format and designated the "fire code official" as the regulating official. However, it is expected, and preferred, that a State level agency designate a standardized key for all jurisdictions to provide for a statewide standardized key.

In preparing this proposal, statewide regulations requiring standardized fire service elevator keys (or Master Elevator Keys) from Florida, Louisiana and New Jersey were reviewed. Since some states and local jurisdictions have already begun to address this issue with the adoption of regulations and other states and jurisdictions are considering this topic it is beneficial to building owners and code officials to have a standard set of requirements contained within the model codes.

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

Analysis: Similar requirements are proposed in code change proposal F40-09/10.

ICCFILENAME: DAVIDSON-SHUMAN-F5-506.3.DOC

Public Hearing Results

PART I- IFC

Committee Action:

Approved as Modified

Modify the proposal as follows:

506.3 Standardized fire service elevator keys. All buildings with elevators equipped with Phase I Emergency Recall, Phase II emergency in-car operation, or a Fire Service Access Elevator shall be equipped to operate with a standardized fire service elevator key approved by the fire code official.

Exception: Where there is a practical difficulty to providing a standardized key, the owner shall be permitted to place the building's non-standardized fire service elevator keys in a key box installed in accordance with Section 506.1.

(Portions of the proposed code change not shown remain unchanged.)

Committee Reason: The committee agreed with the proponent's reason statement and felt that the proposal would reduce the number of keys that need to be carried in fire apparatus. The modification removes subjective language which could lead to inconsistent enforcement.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Brian Black, BDBlack Codes Inc, representing National Elevator Industry Inc; Sean DeCrane representing International Association of Fire Fighters and Jack J. Murphy representing Fire Safety Directors Association of Greater New York, request Approval as Modified by this Public Comment.

Modify the proposal as follows:

PART I-IFC

SECTION 506 KEY BOXES AND FIRE SERVICE ELEVATOR KEYS

506.3 Standardized fire service elevator keys. All buildings with elevators equipped with Phase I Emergency Recall, Phase II emergency in-car operation, or a Fire Service Access Elevator shall be equipped to operate with a standardized fire service elevator key approved by the fire code official complying with ASME A17.1/CSA B44.

Exception: Where there is a practical difficulty to providing a standardized key, the owner shall place the building's non-standardized fire service elevator keys in a key box installed in accordance with Section 506.1.

506.3.1 Requirements for standardized fire service elevator keys. Standardized fire service elevator keys shall comply with all of the following:

- 1- All fire service elevator keys within the jurisdiction shall be uniform and specific for the jurisdiction. Keys shall be cut to a uniform key code.
- 2- Fire service elevator keys shall be a patent protected design to prevent unauthorized duplication.
- 3- Fire service elevator keys shall be factory restricted by the manufacturer to prevent the unauthorized distribution of key blanks. No uncut key blanks shall be permitted to leave the factory.
- 4- Fire service elevator keys subject to these rules shall be engraved with the words "DO NOT DUPLICATE".

506.3.2 Access to standardized fire service keys. Access to standardized fire service elevator keys shall be restricted to the following:

- 1- Elevator owners or their authorized agents;
- 2- Elevator contractors.
- 3- Elevator Inspectors of the jurisdiction.
- 4- Fire code officials of the jurisdiction.
- 5- The fire department and other emergency response agencies designated by the fire code official.

506.3.3 Duplication or distribution of keys. No person may duplicate a standardized fire service elevator key or issue, give, or sell a duplicated key unless in accordance with this code.

506.3.4 Responsibility to provide keys. The building owner shall provide up to three (3) standardized fire service elevator keys where required by the fire code official, upon installation of a standardized fire service key switch or switches in the building.

Commenter's Reason: The National Elevator Industry Inc. (NEII) is in complete agreement with the proponent's reason statement that firefighters need to quickly access an emergency situation, often use the elevators in a building to do so, and need a standardized fire service elevator key that is secure and that will work throughout a jurisdiction. However, this is already a requirement in the ASME A17.1/CSA B44 *Safety Code for Elevators and Escalators* referenced by the *International Fire Code*:

**ASME A17.1a-2008/CSA B44a-08
SECTION 2.27
EMERGENCY OPERATION AND SIGNALING DEVICES**

2.27.8 Switch Keys The key switches required by 2.27.2 through 2.27.5 for all elevators in a building shall be operable by the FEO-K1 key. The keys shall be Group 3 Security (see 8.1). A separate key shall be provided for each switch. These keys shall be kept on the premises in a location readily accessible to firefighters and emergency personnel, but not where they are available to the public. This key shall be of a tubular, 7 pin, style 137 construction and shall have a biting code of 6143521 starting at the tab sequenced clockwise as viewed from the barrel end of the key. The key shall be coded "FEO-K1." The possession of the "FEO-K1" key shall be limited to elevator personnel, emergency personnel, elevator equipment manufacturers, and authorized personnel during checking of Firefighters' Emergency Operation (see 8.1 and 8.6.11.1). Where provided, a lock box, including its lock and other components, shall conform to the requirements of UL 1037 (see Part 9).

NOTE (2.27.8): Local authorities may specify additional requirements for a uniform keyed lock box and its location to contain the necessary keys. Group 3 Security is specified in Section 8.1:

8.1.4 Group 3: Emergency Operation Group 3 covers access or operation of equipment by emergency, authorized, and elevator personnel. In addition to being unnecessary, F20-09/10 has a number of flaws and conflicts with the ASME A17.1/CSA B44 reference standard.

The requirement that keys be "specific for a jurisdiction" [506.3.1(1)] implies a unique key for each jurisdiction such that the key for Dallas elevators would be different than the key for Fort Worth elevators. In fact, all fire service elevator keys in North America are required to be FEO-K1 keys with a specific biting code;

The requirement for keys with a "patent protected design" [506-3-1(2)] conflicts with the ASME A17 Standards Committee's experience that there are at least two vendors that can provide the FEO-K1 key. Requiring a patent could constitute a restraint of trade. It is also unclear how this could be enforced by a fire code official;

Regarding the requirement that the keys be "factory restricted by the manufacturer" [506.3.1.(3)], it is again unclear how this is enforceable by a code official;

The list of entities that have access to the fire service keys does not include the elevator manufacturer (e.g., Otis, Schindler, KONER, etc). This code change also creates a conflict in the IBC by specifying that elevators must comply with ASME A17.1/CSA B44 [3001.2] and with this new set of

Final Action: AS AM AMPC____ D

NOTE: PART II REPRODUCED FOR INFORMATIONAL PURPOSES ONLY – SEE ABOVE

PART II – IBC GENERAL

Add new text as follows:

3003.3 Standardized fire service elevator keys. All elevators shall be equipped to operate with a standardized fire service elevator key in accordance with the *International Fire Code*.

Reason: When fire departments and other public agencies respond to emergencies the ability to quickly access the location of the emergency can be the deciding factor of a successful response. Elevators are increasingly being relied upon for emergency operations and their importance has been highlighted by recent additions to the International Building Code requiring the installation of fire service access elevators and providing requirements for the installation of occupant evacuation elevators.

One of the difficulties the fire service and other emergency response agencies have when accessing facilities and attempting to use elevators is the increasing number of non-standardized keys which may not be available at the time of response. Even when emergency responders are provided the necessary keys in case of response, the correct key may have to be identified from a large collection of keys for any one building. In larger jurisdictions the sheer number of keys makes the possession of the keys unwieldy for the emergency responders.

The purpose Part 1 of this proposal is to provide for a standardized fire service elevator key to reduce the number of keys necessary for accessing elevators in an emergency. As drafted this section will only apply to those buildings that have elevators with Phase I or Phase II emergency service or to those buildings with a fire service access elevator.

The proposal also provides for a level of security for the standardized key. Access to the key that can take control of an elevator is an existing area of vulnerability for buildings and one that was not addressed in the past with simple key designs being utilized. Since this proposal will create a standardized key, it also includes rules for the safeguarding of that key.

Part 2 of this proposal is included to simply place a pointer in the International Building Code should the International Fire Code Committee approve Part 1 of this proposal.

Because the International Codes are written to enable jurisdictions to adopt the codes at the State, Local or Regional levels the proposal follows that format and designated the "fire code official" as the regulating official. However, it is expected, and preferred, that a State level agency designate a standardized key for all jurisdictions to provide for a statewide standardized key.

In preparing this proposal, statewide regulations requiring standardized fire service elevator keys (or Master Elevator Keys) from Florida, Louisiana and New Jersey were reviewed. Since some states and local jurisdictions have already begun to address this issue with the adoption of regulations and other states and jurisdictions are considering this topic it is beneficial to building owners and code officials to have a standard set of requirements contained within the model codes.

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

Analysis: Similar requirements are proposed in code change proposal F40-09/10.

PART II-IBC GENERAL

Committee Action: Approved as Submitted

Committee Reason: The committee agreed with the proponent's reason statement and approved the proposal for consistency with the action taken on Part I.

Assembly Action: None

F21-09/10
507.5.1.1 (New)

Proposed Change as Submitted

Proponent: Daniel E. Nichols, PE, New York State Department of State, Div. of Code Enforcement and Administration

Add new text as follows:

507.5.1.1 Hydrant for standpipe systems. Buildings equipped with a standpipe system installed in accordance with Section 905 shall have a fire hydrant within 100 feet of the fire department connections.

Exception: The distance shall be permitted to be greater than 100 feet when approved by the fire code official.

Reason: NFPA 14 Section 6.4.5.4 requires that a fire hydrant be placed within 100 feet from a fire department connection, unless otherwise approved by the AHJ (6.4.5.4.1). However, this section is generally missed as the site work and site approval is based on the fire apparatus access road and fire department water supply requirements in IFC Chapter 5. By placing this requirement in Section 507, the code user is better directed to this requirement during the site design and not an afterthought as it usually happens during the building permit plan review.

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

ICCFILENAME: NICHOLS-F3-507.5.1.1.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The committee felt that the proposed requirement should apply to all fire department connections, not just those for standpipes.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Daniel E. Nichols PE, New York State Div. of Code Enforcement and Administration, requests Approval as Submitted.

Commenter's Reason: The committee agreed that this should be in this section, but disapproved it because it didn't also cover sprinkler system connections. The original submission is based solely on a requirement in NFPA 14 that gets frequently missed. I did not add sprinkler connections in either the original submission or a public comment since NFPA 13 does not have a distance requirement to a fire hydrant for connections serving sprinkler systems. Adding a requirement for a distance to a fire hydrant from a set of sprinkler connections is best suited for either Section 903 or NFPA 13 since it would be a design requirement of the sprinkler system. Also, I would be against a distance to a sprinkler connection since sprinkler systems are used in rural and suburban areas as a reduction for areas without a municipal water and, in turn, fire hydrants.

This proposal should be approved as submitted to better assist the plan reviewer and designer with appropriate fire hydrant placement and not rely on a fire hydrant spacing requirement buried in a referenced standard.

Final Action: AS AM AMPC_____ D

F25-09/10

508.1.5 (IBC [F] 911.1.5)

Proposed Change as Submitted

Proponent: Gary Lewis, Chair, ICC Ad Hoc Committee on Terrorism-Resistant Buildings

Revise as follows:

508.1.5 (IBC [F] 911.1.5) Required features. The fire command center shall comply with NFPA 72 and shall contain the following features.

1. The emergency voice/alarm communication system unit.
2. The fire department communications system.
3. Fire-detection and alarm system annunciator system.
4. Annunciator visually indicating the location of the elevators and whether they are operational.
5. Status indicators and controls for air handling systems.
6. The fire-fighters control panel required by Section 909.16 for smoke control systems installed in the building.
7. Controls for unlocking stairway doors simultaneously.
8. Sprinkler valve and water-flow detector display panels.
9. Emergency and standby power status indicators.
10. A telephone for fire department use with controlled access to the public telephone system.
11. Fire pump status indicators.
12. Schematic building plans, including a Building Information Card approved by the fire department, which shall provide building statistics including address, height, width and type of construction; stairway access, designation, floors served, pressurization, standpipe availability; elevators bank designation, car numbers, and floors served; ventilation details, including HVAC zones, location of mechanical equipment rooms, and offsite emergency phone numbers; utilities, fuel oil tank locations, gas service locations, electrical service locations; fire protection systems details, including standpipe locations, valve locations, pump room locations; hazardous materials and locations; and, contact phone numbers for building engineers, managers and fire safety directors. The Building Information Card shall also indicate ~~indicating~~ the typical floor plan and detailing the building core, means of egress, fire protection systems, elevator locations, firefighting equipment and fire department access and the location fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions.
13. Work table.
14. Generator supervision devices, manual start and transfer features.
15. Public address system, where specifically required by other sections of this code.
16. Elevator fire recall switch in accordance with ASME A17.1.
17. Elevator emergency or standby power selector switch(es), where emergency or standby power is provided.

Reason: This proposal is a revised follow-up to a similar proposal defeated last cycle. It is part of a package of submittals generated by the ICC's Ad Hoc Committee on Terrorism-Resistant Buildings. The proposal seeks to slightly modify and revise an existing provision of the IBC and a parallel provision in the IFC related to fire command centers in high-rise buildings.

The scope of the proposal has been reduced to simply codifying Item #12 of the list of required fire department support features in the center. There is a need to provide complete, yet concise information to the responding fire service to assist in assessment and management of the rescue and fire fighting efforts.

The Final Report on the Collapse of the World Trade Center contained 30 key recommendations compiled by the National Institute of Standards and Technology designed to address the building vulnerabilities learned in that tragedy. Three of those thirty recommendations (Items #15, 23 and 24) embrace increasing situational awareness and emergency communications of first responders in large-scale emergencies. In fact, the command center was recently doubled in size, and now also contains additional elevator control switching, a relatively new enhancement.

The proposed Building Information Card in #12, as utilized by the NYFD, puts critical response information in a user-friendly format and medium. A simulation of the Building Information Card used in New York City follows:

Bibliography: National Institute of Standards & Technology, Final Report of the National Construction safety Team on the Collapses of the World Trade Center Towers. United States Government Printing Office: Washington, D.C. September 2005.

Cost Impact: The Ad Hoc Committee anticipates no additional cost to construction resulting from this proposal as the bulk of this information must already be provided based on the current code.

ICCFILENAME: LEWIS-F1-508.1.5.DOC

Public Hearing Results

Committee Action:

Approved as Submitted

Committee Reason: The committee agreed with the proponent's reason statement and felt that the building information card would be a useful tool that would enable the incident commander to quickly gather critical building information upon arrival at a scene and effectively plan tactics.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Dave Frable, representing U.S. General Services Administration, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

508.1.5 (IBC [F] 911.1.5) Required features. The fire command center shall comply with NFPA 72 and shall contain the following features.

1. The emergency voice/alarm communication system unit.
2. The fire department communications system.
3. Fire-detection and alarm system annunciator system.
4. Annunciator visually indicating the location of the elevators and whether they are operational.
5. Status indicators and controls for air handling systems.
6. The fire-fighters control panel required by Section 909.16 for smoke control systems installed in the building.
7. Controls for unlocking stairway doors simultaneously.
8. Sprinkler valve and water-flow detector display panels.
9. Emergency and standby power status indicators.
10. A telephone for fire department use with controlled access to the public telephone system.
11. Fire pump status indicators.
12. Schematic building plans, ~~including a Building Information Card approved by the fire department, which shall provide building statistics including address, height, width and type of construction; stairway access, designation, floors served, pressurization, standpipe availability; elevators bank designation, car numbers, and floors served; ventilation details, including HVAC zones, location of mechanical equipment rooms, and offsite emergency phone numbers; utilities, fuel oil tank locations, gas service locations, electrical service locations; fire protection systems details, including standpipe locations, valve locations, pump room locations; hazardous materials and locations; and, contact phone numbers for building engineers, managers and fire safety directors. The Building Information Card shall also indicate indicating the typical floor plan and detailing the building core, means of egress, fire protection systems, elevator locations, firefighting equipment and fire department access and the location fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions.~~
13. An approved Building Information Card that contains, but is not limited to, the following information:
 - (a) general building information that includes: property name, address, the number of floors in the building (above and below grade), use and occupancy classification (mixed used identify the different types of occupancies on each floor), estimated building population (i.e., day, night, weekend);
 - (b) building emergency contact information that includes: a list of the building's emergency contacts (e.g., building manager, building engineer, etc.) and their respective work phone number, cell phone number, e-mail address;
 - (c) building construction information that includes: the type of building construction (e.g., floors, walls, columns, and roof assembly);
 - (d) exit stair information that includes: number of exit stairs in building, each exit stair designation and floors served, location where each exit stair discharges, exit stairs that are pressurized, exit stairs provided with emergency lighting, each exit stair that allows reentry, exit stairs providing roof access; elevator information that includes: number of elevator banks, elevator bank designation, elevator car numbers and respective floors that they serve, location of elevator machine rooms, location of sky lobby, location of freight elevator banks;
 - (e) building services and system information that includes: location of mechanical rooms, location of building management system, location and capacity of all fuel oil tanks, location of emergency generator, location of natural gas service;
 - (f) fire protection system information that includes: locations of standpipes, location of fire pump room, location of fire department connections, floors protected by automatic sprinklers, location of different types of sprinkler systems installed (e.g., dry, wet, pre-action, etc.);
 - (g) hazardous material information that includes: location of hazardous material, quantity of hazardous material.
- ~~14.43-~~ Work table.
- ~~15.44-~~ Generator supervision devices, manual start and transfer features.
- ~~16.45-~~ Public address system, where specifically required by other sections of this code.
- ~~17.46-~~ Elevator fire recall switch in accordance with ASME A17.1.
- ~~18.47-~~ Elevator emergency or standby power selector switch(es), where emergency or standby power is provided.

Commenter's Reason: The intent of the modification is for clarification purposes only and to make the subject information contained on the building information card more user friendly to understand.

Public Comment 2:

Lawrence G. Perry, AIA, representing Building Owners and Managers Association (BOMA) International, requests Disapproval

Commenter's Reason: This code change should be disapproved for the following reasons:

1. The proposal seeks to add a new 'tool' called the Building Information Card to the list of items provided in the Fire Command Center. However, it does so in a way that reduces the overall information provided. Note that item 12 in the current code requires that schematic drawings include each of the existing items listed; as modified by this proposal, the insertion of the Building Information Card language reduces what is required on the schematic drawings. A code change in the 07/08 cycle added a requirement that schematic drawings include the location of fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions; as modified by this change, that requirement is deleted. Only the 'Building Information Card' would have this information.
2. This appears to be a backward-looking proposal. Major jurisdictions, such as Los Angeles, are currently working with building owners to develop appropriate electronic and/or online building information materials for use by responding emergency services. Establishing a new code requirement for a printed 'card' is pushing the IFC in the wrong direction.
3. The proposed change uses terminology not used in the *International Codes*. It requires providing contact information for 'fire safety directors', which is a term used in New York City, from which this card concept was taken, but is not a title used in the I-codes.

Final Action: AS AM AMPC____ D

F27-09/10
510, 502.1, Appendix J, 105.7.12 (New)

Proposed Change as Submitted

Proponent: Tom Lariviere, Chairman, Joint Fire Service Review Committee

1. Revise as follows:

SECTION 510
EMERGENCY RESPONDER RADIO COVERAGE

510.1 Emergency responder radio coverage in new buildings. All new buildings shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where *approved* by the *building code official* and the *fire code official*, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an *approved* radio coverage system.
2. Where it is determined by the *fire code official* that the radio coverage system is not needed.

~~510.3~~ 510.2 Emergency responder radio coverage in existing buildings. Existing buildings that do not have *approved* radio coverage for emergency responders within the building shall be equipped with such coverage according to one of the following:

1. Whenever existing wired communication system cannot be repaired or is being replaced, or where not *approved* in accordance with Section 510.1 Exception 1.
2. Within a time frame established by the adopting authority.

~~J404-2~~ 510.3 Permit required. A construction permit ~~is required~~ for installation of or modification to emergency responder radio coverage systems and related equipment is required as specified in Section 105.7.12. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

510.4 Technical requirements. Systems, components, and equipment required to provide emergency responder radio coverage system shall comply with Sections 511.4.1 through 511.4.2.5.

~~510.2~~ **510.4.1 Radio signal strength.** The building shall be considered to have acceptable emergency responder radio coverage when signal strength measurements in 95 percent of all areas on each floor of the building meet the signal strength requirements in Sections ~~510.2.4~~ 510.4.1.1 and ~~510.2.2~~ 510.4.1.2.

~~510.2.1~~ **510.4.1.1 Minimum signal strength into the building.** A minimum signal strength of -95 dBm shall be receivable within the building.

~~510.2.2~~ **510.4.1.2 Minimum signal strength out of the building.** A minimum signal strength of -100 dBm shall be received by the agency's radio system when transmitted from within the building.

~~J103.1~~ **510.4.2 System design.** The emergency responder radio coverage system shall be designed in accordance with Sections ~~510.3.2.4~~ 510.4.2.1 through ~~510.3.2.5~~ 510.4.2.5.

~~J103.1.1~~ **510.4.2.1 Amplification systems allowed.** Buildings and structures which cannot support the required level of radio coverage shall be equipped with a radiating cable system, a distributed antenna system with Federal Communications Commission (FCC)-certified signal boosters, or other system approved by the *fire code official* in order to achieve the required adequate radio coverage.

~~J103.1.2~~ **510.4.2.2 Technical criteria.** The *fire code official* shall maintain a document providing the specific technical information and requirements for the emergency responder radio coverage system. This document shall contain, but not be limited to, the various frequencies required, the location of radio sites, effective radiated power of radio sites, and other supporting technical information.

~~J103.1.3~~ **510.4.2.3 Secondary power.** Emergency responder radio coverage systems shall be provided with an *approved* secondary source of power. The secondary power supply shall be capable of operating the emergency responder radio coverage system for a period of at least 12 hours. When primary power is lost, the power supply to the emergency responder radio coverage system shall automatically transfer to the secondary power supply.

~~J103.1.4~~ **510.4.2.4 Signal booster requirements.** If used, signal boosters shall meet the following requirements:

1. All signal booster components shall be contained in a NEMA4-type water proof cabinet.
2. Battery systems used for the emergency power source shall be contained in a NEMA4-type water proof cabinet.
3. ~~The system shall include automatic alarming of malfunctions of the signal booster system and battery system. Any resulting trouble alarm shall be automatically transmitted to an approved central station or proprietary supervising station as defined in NFPA 72 shall be electrically supervised and monitored by a supervisory service,~~ or when approved by the *fire code official*, shall sound an audible signal at a constantly attended location.
4. Equipment shall have FCC Certification prior to installation.

~~J103.1.5~~ **510.4.2.5 Additional frequencies and change of frequencies.** The emergency responder radio coverage system shall be capable of modification or expansion in the event frequency changes are required by the FCC or additional frequencies are made available by the FCC.

~~J103.2~~ **510.5 Installation requirements.** The installation of the public safety radio coverage system shall be in accordance with Sections ~~J103.2.4~~ 510.5.1 through ~~J103.2.5~~ 510.5.5.

~~J103.2.1~~ **510.5.1 Approval prior to installation.** No amplification system capable of operating on frequencies licensed to any public safety agency by the FCC shall be installed without prior coordination and approval of the *fire code official*.

~~J103.2.3~~ **510.5.3 Minimum qualifications of personnel.** The minimum qualifications of the system designer and lead installation personnel shall include:

1. A Valid FCC issued General Radio Operators License, and
2. Certification of in-building system training issued by a nationally recognized organization, school or a certificate issued by the manufacturer of the equipment being installed.

The agency may waive these requirements upon successful demonstration of adequate skills and experience satisfactory to the *fire code official*.

J103.2.4 510.5.4 Acceptance test procedure. When an emergency responder radio coverage system is required, and upon completion of installation, the building *owner* shall have the radio system tested to ensure that two-way coverage on each floor of the building is a minimum of 90 percent. The test procedure shall be conducted as follows:

1. Each floor of the building shall be divided into a grid of 20 approximately equal areas.
2. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system.
3. A maximum of two nonadjacent areas will be allowed to fail the test.
4. In the event that three of the areas fail the test, in order to be more statistically accurate, the floor may be divided into 40 equal areas. A maximum of four nonadjacent areas will be allowed to fail the test. If the system fails the 40-area test, the system shall be altered to meet the 90 percent coverage requirement.
5. A test location approximately in the center of each grid area will be selected for the test, then the radio will be enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire area. If the test fails in the selected test location, that grid area shall fail, and prospecting for a better spot within the grid area will not be allowed.
6. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building owner so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building owner will be required to rerun the acceptance test to reestablish the gain values.
7. As part of the installation a spectrum analyzer or other suitable test equipment shall be utilized to insure spurious oscillations are not being generated by the subject signal booster. This test will be conducted at time of installation and subsequent annual inspections.

J103.2.5 510.5.5 FCC compliance. The emergency responder radio coverage system installation and components shall also comply with all applicable federal regulations, including but not limited to, FCC 47 CFR 90.219.

J103.3 510.6 Maintenance. The emergency responder radio coverage system shall be maintained operational at all times in accordance with Sections ~~540.5.4~~ 510.6.1 through ~~540.5.3~~ 510.6.3.

J103.3.1 Maintenance. ~~The public radio coverage system shall be maintained operational at all times.~~

J103.3.2 Permit required. ~~A construction permit, as required by Section 105.7.5 of the *International Fire Code*, shall be obtained prior to the modification or alteration of the emergency responder radio coverage system.~~

J103.3.3 510.6.1 Testing and proof of compliance. The emergency responder radio coverage system shall be inspected and tested annually or whenever structural changes occur including additions or remodels that could materially change the original field performance tests. Testing shall consist of the following:

1. In-building coverage test as described in Section ~~J103.2.4~~ 510.5.4.
2. Signal boosters shall be tested to ensure that the gain is the same as it was upon initial installation and acceptance.
3. Backup batteries and power supplies shall be tested under load of a period of one hour to verify that they will properly operate during an actual power outage. If within the one hour test period the battery exhibits symptoms of failure, the test shall be extended for additional one hour periods until the integrity of the battery can be determined.
4. All other active components shall be checked to verify operation within the manufacturer's specifications.
5. At the conclusion of the testing a report which shall verify compliance with Section ~~J103.3.4~~ 510.5.4 be submitted to the *fire code official*.

J103.3.4 510.6.2 Additional frequencies. The building *owner* shall modify or expand the emergency responder radio coverage system at their expense in the event frequency changes are required by the FCC or additional frequencies are made available by the FCC. Prior approval of a public safety radio coverage system on previous frequencies does not exempt this section.

J103.3.5 510.6.3 Field testing. Agency personnel shall have the right to enter onto the property at any reasonable time to conduct field-testing to verify the required level of radio coverage.

J102.1 Definitions. For the purpose of this appendix, certain terms are defined as follows:

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

AGENCY. Any emergency responder department within the jurisdiction that utilizes radio frequencies for communication. This could include, but not be limited to, various public safety agencies such as fire department, emergency medical services and law enforcement.

2. Add new text as follows:

105.7.12 Radio coverage system. A construction permit is required for installation of or modification to emergency responder radio coverage systems and related equipment. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

(Re-number subsequent sections)

3. Delete Appendix J without substitution:

**APPENDIX J
EMERGENCY RESPONDER RADIO COVERAGE**

Reason: This proposal takes the requirements for emergency responder radio coverage made last code cycle and finishes the process. Appendix J was included in the 2009 edition and contains the installation and testing criteria for the emergency responder radio coverage system. In this proposal, the entire appendix is relocated into the code. This action is the result of a request by the Code Development Committee last cycle and can be seen in their Reason Statement in Report on Hearings.

As the appendix is relocated into the code, some minor clarifications occurred. The following revisions are made:

1. 510.1 – the term “new” is included to clarify the difference between Section 510.1 (new construction) and 510.2 (existing construction)
 2. 510.3 – this section has been relocated and includes three sections from the appendix which dealt with permits. Sections J101.2, J103.2.2 and J103.3.2 all referenced permits. This revision will provide a single section which covers permits for these systems.
 3. 105.7.12 – this permit requirement is added to Chapter 1. Since the appendix is deleted, the permit requirement also needs to be located within the code. This is editorial.
 4. 510.4.2.4 – Item 3 is revised to correlate with the new wording used in other sections of the code when referencing monitoring of systems.
- 510.6 – The two sections from the Appendix J103.3 and J103.3.1 have been combined into one section for simplicity.

Cost Impact: The code change proposal will increase the cost of construction.

ICCFILENAME: LARIVIERE-F33-510.DOC

Public Hearing Results

Committee Action:

Approved as Modified

Modify the proposal as follows:

510.2 Emergency responder radio coverage in existing buildings. Existing buildings that do not have approved radio coverage for emergency responders within the building shall be equipped with such coverage according to one of the following:

1. Whenever existing wired communication system cannot be repaired or is being replaced, or where not *approved* in accordance with Section 510.1 Exception 1.
2. Within a time frame established by the adopting authority.

Exception: Where it is determined by the fire code official that the radio coverage system is not needed.

(Portions of the proposed code change not shown remain unchanged.)

Committee Reason: The committee felt that the specific requirements for emergency responder radio coverage are important enough to warrant relocation into the code text rather than being “hidden” in an appendix. The modification provides the same consideration for existing buildings as Section 510.1 does for new buildings.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Michael E. Dell'Orfano representing Fire Marshal's Association of Colorado, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

510.1 Emergency responder radio coverage in new buildings. All new buildings shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where *approved* by the *building code official* and the *fire code official*, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an *approved* radio coverage system.
2. Where it is determined by the *fire code official* that the radio coverage system is not needed.
3. One- and two-family dwellings and townhouses.

510.2 Emergency responder radio coverage in existing buildings. Existing buildings that do not have *approved* radio coverage for emergency responders within the building shall be equipped with such coverage according to one of the following:

1. Whenever existing wired communication system cannot be repaired or is being replaced, or where not *approved* in accordance with Section 510.1 Exception 1.
2. Within a time frame established by the adopting authority.

Exceptions:

1. Where it is determined by the fire code official that the radio coverage system is not needed.
2. One- and two-family dwellings and townhouses.

(Portions of proposal not shown, remain unchanged)

Commenter's Reason: This public comment recommends an additional modification to F27-09/10 by adding an exception for new and existing one- and two-family dwellings and townhouses. Installation of an amplification system, when needed to enhance radio coverage, is unreasonable in a one- and two-family dwelling or townhouse due to the inability to verify maintenance of these systems. Inadequate maintenance may not only decrease reliability of the individual system, but may also degrade the performance of the overall public safety communication system. Critical periodic inspections would need to be performed to verify the system is operational, secondary power is maintained, signal strengths are appropriate, and frequency changes are accommodated. Such inspections, and the corresponding corrections of system deficiencies, would be difficult or impossible to achieve. It is also not common practice in the fire service to conduct code enforcement inspections in one- and two-family dwellings and townhouses.

Public Comment 2:

Michael E. Dell'Orfano representing Fire Marshal's Association of Colorado, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

510.1 Emergency responder radio coverage in new buildings. All new buildings shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

- ~~4. Where *approved* by the *building code official* and the *fire code official*, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an *approved* radio coverage system.~~
- ~~2. Where it is determined by the *fire code official* that the radio coverage system is not needed.~~

510.2 Emergency responder radio coverage in existing buildings. Existing buildings that do not have *approved* radio coverage for emergency responders within the building shall be equipped with such coverage according to one of the following:

1. Whenever existing wired communication system cannot be repaired or is being replaced, or where not *approved* in accordance with Section 510.1 Exception 1.
2. Within a time frame established by the adopting authority.

~~**Exception:** Where it is determined by the fire code official that the radio coverage system is not needed.~~

(Portions of proposal not shown remain unchanged)

Commenter's Reason: Section 510, as modified by F27-09/10, clearly states that buildings shall have adequate radio coverage by naturally-available signal strengths, wired communication systems, or amplification systems. If the requirements and design options are clear, then under what circumstances would a fire code official determine that radio coverage is not needed in order to apply the exception to 510.1 and 510.2? This exception would imply that the code requirement could arbitrarily be waived without contemplating the practical difficulties or alternate methods allowed in chapter 1. Such an exception is not found in any other IFC construction requirement such as fire sprinklers or fire alarms where the required thresholds and design options are similarly clear. Therefore, it is recommended that the exceptions be removed.

Public Comment 3:

Bob Eugene representing Underwriters Laboratories Inc, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

510.4.1.2 Minimum signal strength out of the building. A minimum signal strength of ~~-40~~ -95 dBm shall be received by the agency's radio system when transmitted from within the building.

(Portions of the proposal not shown remain unchanged.)

Commenter's Reason: Section 24.5.2 of the 2010 edition NFPA 72 National Fire Alarm Code provides different outbound signal strength than specified in 510.4.1.2 as approved by the committee. For consistency, these two companion documents should adopt the same parameters.

Public Comment 4:

Bob Eugene representing Underwriters Laboratories Inc, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

510.4.2.3 Secondary power. Emergency responder radio coverage systems shall be provided with an *approved* secondary source of power. The secondary power supply shall be capable of operating the emergency responder radio coverage system for a period of at least ~~42~~ 24 hours. When primary power is lost, the power supply to the emergency responder radio coverage system shall automatically transfer to the secondary power supply.

(Portions of the proposal not shown remain unchanged.)

Commenter's Reason: Emergency power shall be capable of operating at least 24 hours per NFPA 72 National Fire Alarm Code.

Public Comment 5:

Bob Eugene representing Underwriters Laboratories Inc, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

510.4.2.4 Signal booster requirements. If used, signal boosters shall meet the following requirements:

1. All signal booster components shall be contained in a NEMA4-type water proof cabinet.
2. Battery systems used for the emergency power source shall be contained in a NEMA4-type water proof cabinet.
3. The system shall include automatic alarming of malfunctions of the signal booster system and battery system. Any resulting trouble alarm shall be automatically transmitted to an approved central station or proprietary supervising station as defined in NFPA 72 shall be electrically supervised and monitored by a supervisory service, or when approved by the *fire code official*, shall sound an audible signal at a constantly attended location.
4. Equipment shall have FCC Certification prior to installation.

(Portions of the proposal not shown remain unchanged.)

Commenter's Reason: The existing text is restored and incorporated into Section 510.4.2.4. The original proposal as approved by the committee has the unfortunate consequence of being very vague regarding monitoring troubles off-site.

Public Comment 6:

Paul K. Heilstedt, PE, HonAIA, Chair, representing ICC Code Technology Committee (CTC) and Joe Pierce (Chairman), Dallas Fire Department, representing Joint Fire Service Review Committee, request Approval as Modified by this Public Comment.

Further modify the proposal as follows:

510.2 Emergency responder radio coverage in existing buildings. Existing buildings shall be provided with *approved* radio coverage for emergency responders as required in Chapter 46.

4603.2 510.2 Emergency responder radio coverage in existing buildings. Existing buildings that do not have *approved* radio coverage for emergency responders within the building shall be equipped with such coverage according to one of the following:

1. Whenever existing wired communication system cannot be repaired or is being replaced, or where not *approved* in accordance with Section 510.1 Exception 1.
2. Within a time frame established by the adopting authority.

Exception: Where it is determined by the *fire code official* that the radio coverage system is not needed.

510.5.1 Approval prior to installation. ~~No~~ Amplification systems capable of operating on frequencies licensed to any public safety agency by the FCC shall not be installed without prior coordination and approval of the *fire code official*.

510.5.3 Minimum qualifications of personnel. The minimum qualifications of the system designer and lead installation personnel shall include:

1. A Valid FCC issued General Radio Operators License, and
2. Certification of in-building system training issued by a nationally recognized organization, school or a certificate issued by the manufacturer of the equipment being installed.

~~The agency may waive~~ These requirements qualifications shall not be required where upon successful demonstration of adequate skills and experience satisfactory to the *fire code official* is provided.

510.5.4 Acceptance test procedure. When an emergency responder radio coverage system is required, and upon completion of installation, the building *owner* shall have the radio system tested to ensure that two-way coverage on each floor of the building is a minimum of 90 percent. The test procedure shall be conducted as follows:

1. Each floor of the building shall be divided into a grid of 20 approximately equal test areas.
2. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system.
3. Failure of a maximum of two nonadjacent test areas will be allowed to fail the test shall not result in failure of the test.
4. In the event that three of the test areas fail the test, in order to be more statistically accurate, the floor ~~may~~ shall be permitted to be divided into 40 equal test areas. Failure of a maximum of four nonadjacent test areas will be allowed to fail the test shall not result in failure of the test. If the system fails the 40-area test, the system shall be altered to meet the 90 percent coverage requirement.
5. A test location approximately in the center of each grid test area ~~will~~ shall be selected for the test, ~~then with~~ the radio ~~will be~~ enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire test area. If the test fails Failure in the selected test location shall be considered failure of that grid test area shall fail, and prospecting for a better spot within the grid area will not be allowed. Additional test locations shall not be permitted.
6. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building owner so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building owner ~~will be required~~ shall to rerun the acceptance test to reestablish the gain values.
7. As part of the installation a spectrum analyzer or other suitable test equipment shall be utilized to insure spurious oscillations are not being generated by the subject signal booster. This test ~~will~~ shall be conducted at time of installation and subsequent annual inspections.

Commenter's Reason: This language originated with code change F87-07/08 last cycle for which the CTC was a co-proponent of the public comment with the Joint Fire Service Review committee. As part of the appendix, this text required the adopting entity to review the language for consideration as a set of mandatory requirements. With the relocation into the body of the code, it is important that all such text be compiled in mandatory, enforceable language. This Public Comment proposes such revisions as editorial.

Additionally, in Section 510.2 the language is relocated in to Chapter 46 to be consistent with the other portions of the IFC. All construction requirements applicable to existing buildings have been compiled in Chapter 46. This is simply an editorial revision to format these requirements in the style of the IFC.

Public Comment 7:

Jeffrey Shapiro, P.E., International Code Consultants, representing National Multi Housing Council, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

510.2 Emergency responder radio coverage in existing buildings. Existing buildings that do not have *approved* radio coverage for emergency responders within the building, based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building, shall be equipped with such coverage according to one of the following:

1. Whenever existing wired communication system cannot be repaired or is being replaced, or where not *approved* in accordance with Section 510.1 Exception 1.
2. Within a time frame established by the adopting authority.

Exception: Where it is determined by the *fire code official* that the radio coverage system is not needed.

(Portions of the proposal not shown remain unchanged.)

Commenter's Reason: The text that is recommended for inclusion in Section 510.2 is currently included in 510.1. In that location, it previously applied to both new and existing buildings. When the section was reformatted by this proposal to split new and existing buildings into two sections, the text was mistakenly omitted from 510.2, unintentionally changing the requirement. Including this text is necessary so that there is a basis of judging the adequacy of the existing radio coverage, and it maintains the existing requirement since there was no apparent intent to delete it.

Final Action: AS AM AMPC____ D

F29-09/10
510.1

Proposed Change as Submitted

Proponent: Ronald Marts, Telecordia, Qwest Communications, AT&T

Revise as follows:

510.1 Emergency responder radio coverage in buildings. All buildings shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where *approved* by the building official and the *fire code official*, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an *approved* radio coverage system.
2. Where it is determined by the *fire code official* that the radio coverage system is not needed.
3. In telecommunications buildings, where emergency responder radio coverage is required and such systems, components or equipment required may have a negative impact of radio frequency interference (RFI) on local, regional and/or national telecommunications functions of the facility, it shall be permitted to provide a function switch for the activation of the internal emergency responder radio system. The location of the function switch shall be approved by the fire code official.

Reason: This specific activation of the facilities internal emergency responder radio system will limit potential inference with the vital telecommunications operations of the facility to 24/7 exposure to these signals. The potential for interference with the operations of the telecommunications facility operations is unique to each space and operation of the facility and places in direct risk emergency services, national security and defense, and other critical telecommunications functions of the facility.

To date, studies have suggested that RFI from these transmitters may affect telecommunications equipment and thus telecommunications service.

Cost Impact: The code change proposal will have a small impact on construction cost

ICCFILENAME: MARTS-F1-510.1.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The committee felt that exempting a specific type of facility could set up a future trend toward a "laundry list" of facilities that wish to be exempt from the requirement. It also felt that the existing exceptions, reasonably applied, could remedy any such concerns and that IFC Section 104.9 could also be applied. The committee also felt that providing an "on-off" switch for the radio coverage system could place first responders in danger.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Ronald Marts representing Telcordia Technologies, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

510.1 Emergency responder radio coverage in buildings. All buildings shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where *approved* by the building official and the *fire code official*, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an *approved* radio coverage system.
2. Where it is determined by the *fire code official* that the radio coverage system is not needed.
3. ~~In telecommunications buildings, where emergency responder radio coverage is required and such systems, components or equipment required may have a negative impact of radio frequency interference (RFI) on local, regional and/or national telecommunications functions of the facility, it shall be permitted to provide a function switch for the activation of the internal emergency responder radio system. The location of the function switch shall be approved by the fire code official.~~
In facilities where emergency responder radio coverage is required and such systems, components or equipment required may have a negative impact on the normal operations of that facility, the fire code official shall have the authority to accept an automatically activated responder system.

Commenter's Reason: Some facilities, such as telecommunications central offices have equipment that may be affected by the radio frequency interference (RFI) of responder radio equipment. Having the emergency responder radio equipment off until needed rectifies the expected interference. The fire official and the building owner can decide on the automatic means of activating the responder system. To date, studies have suggested that RFI from these transmitters may affect telecommunications equipment and thus telecommunications service to the community, including 911 calls.

Cost Impact: The code change proposal will have a small impact on construction cost.

Final Action: AS AM AMPC____ D

F30-09/10
511 (New)

Proposed Change as Submitted

Proponents: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Add new section as follows:

SECTION 511 SOLAR PHOTOVOLTAIC INSTALLATIONS

511.1 General. The installation of solar photovoltaic installations shall comply with Table 601 and Chapter 16 of the International Building Code. The installation shall also comply with Sections 511.2 through 511.11 and NFPA 70.

511.2 Circuit marking. To facilitate identifying energized electrical lines that connect the solar panels to the inverter, to prevent these conduits from being cut when venting for smoke removal, markings shall be provided to give emergency responders appropriate warning that a solar electric system is present.

511.3 Materials. The materials used for marking shall be reflective, weather resistant and suitable for the environment.

511.4 Main service disconnect. For residential occupancies, the marking shall be placed within the main service disconnect. If the main service disconnect is operable with the service panel closed, then the marking shall be placed on the outside cover. For commercial occupancies, the marking shall be placed adjacent to the main service disconnect in a location clearly visible from the location where the lever is operated.

511.4.1. Marking content and format. The marking shall contain the words "CAUTION: SOLAR ELECTRIC CONNECTED" in capital letters a minimum of 3/8 inches in height with white letters on a red background.

511.5 DC conduit, raceways, enclosures, cable assemblies, and junction boxes. Marking shall be provided on all interior and exterior dc conduit, raceways, enclosures, cable assemblies, and junction boxes to alert the fire service to their presence. The marking shall be placed every 10 feet or fraction thereof, at turns and above and below penetrations, and on all dc combiner and junction boxes.

511.5.1 Marking content and format. The marking shall contain the words "CAUTION: SOLAR ELECTRIC CONNECTED" in capital letters a minimum of 3/8 inches in height with white letters on a red background.

511.5.2 Locations of DC conductors. Conduit, wiring systems, and raceways for photovoltaic circuits shall be located as close as possible to the ridge or hip or valley and from the hip or valley as directly as possible to an outside wall to reduce trip hazards and maximize ventilation opportunities. Conduit runs between sub arrays and to DC combiner boxes shall be installed in a manner that minimizes total amount of conduit on the roof by taking the shortest path from the array to the DC combiner box. The DC combiner boxes shall be located such that conduit runs are minimized in the pathways between arrays.

511.6 Power disconnects. A power disconnect shall be located within 3 feet of the photovoltaic array to provide for de-energizing the DC circuit(s) from the array to the inverter. The disconnect shall be label with reflective lettering.

511.7 Access, pathways for smoke ventilation. Roof access and spacing requirements shall be observed in order to ensure access to the roof; provide pathways to specific areas of the roof; provide for smoke ventilation operations; and to provide emergency egress from the roof.

511.8 Roof access points. Roof access points shall be defined as an area that does not place ground ladders over openings such as windows or doors, and are located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires, or signs.

511.9. Residential systems-One- and two-family residential dwellings. Access shall be provided in accordance with Sections 511.9.1 through 511.9.3

511.9.1 Residential buildings with hip roof layouts. Panels shall be located in a manner that provides one (1) three-foot (3') wide clear access pathway from the eave to the ridge on each roof slope where panels are located. The access pathway shall be located at a structurally strong location on the building such as along a underlying bearing wall.

511.9.2 Residential buildings with a single ridge. Panels shall be located in a manner that provides two (2) three-foot (3') wide access pathways from the eave to the ridge on each roof slope where panels are located.

511.9.3 Hips and Valleys: Panels shall be located no closer than one and one half (1.5) feet to a hip or a valley if panels are to be placed on both sides of a hip or valley. If the panels are to be located on only one side of a hip or valley that is of equal length then the panels shall be permitted to be placed directly adjacent to the hip or valley.

511.9.4 Ventilation. Panels shall be located no higher than three feet (3) below the ridge.

Exception: The fire department is authorized to allow panels to be located two (2) feet below the ridge if a product or method acceptable to the fire department has been provided for ventilation.

511.10 All other occupancies. Access shall be provided in accordance with Sections 511.10.1 through 511.10.3

511.10.1 Access. There shall be a minimum six (6) foot wide clear perimeter around the edges of the roof.
Exception: If either axis of the building is 250 feet or less, there shall be a minimum four feet (4') wide clear perimeter around the edges of the roof.

511.10.2 Pathways. The solar installation shall be designed to provide designated pathways. The pathways shall meet the following requirements:

1. The pathway shall be over structural members
2. The center line axis pathways shall be provided in both axis of the roof. Center line axis pathways shall run on structural members or over the next closest structural member nearest to the center lines of the roof
3. Shall be straight line not less than 4 feet clear to skylights and/or ventilation hatches
4. Shall be straight line not less than 4 feet clear to roof standpipes
5. Shall provide not less than 4 feet clear around roof access hatch with at least one not less than 4 feet clear pathway to parapet or roof edge

511.10.3 Ventilation. The solar installation shall be designed to meet the following requirements.

1. Arrays shall be no greater than 150 by 150 feet in distance in either axis
2. Ventilation options between array sections shall be either a pathway 8 feet or greater in width; a 4 feet or greater in width pathway and bordering on existing roof skylights or ventilation hatches; or a 4 feet or greater in width pathway and bordering 4' x 8' "venting cutouts" every 20 feet on alternating sides of the pathway

511.11 Ground mounted photovoltaic arrays. Ground mounted photovoltaic arrays shall comply with Sections 511.1 through 511.6 and this section. Setback requirements do not apply to ground-mounted, free standing photovoltaic arrays. A clear brush area of 10' is required for ground mounted photovoltaic arrays.

Reason: Photovoltaic arrays are increasing in popularity as an alternative energy source. These arrays, which cannot be shut down and retain electrical charges present unique hazards to firefighters operating on roofs with arrays or nearby circuits.

This proposal is intended to provide general requirements to allow for increased safety of firefighters working around and near the arrays.

These provisions were created from a "DRAFT SOLAR PHOTOVOLTAIC INSTALLATION GUIDELINE " prepared by the CAL FIRE, Office of the State Fire Marshal, local California fire departments, and the solar photovoltaic industry.

Cost Impact: The code change proposal will increase the cost of Photovoltaic installations.

Analysis: Code change proposal F238-09/10 proposes similar requirements.

ICCFILENAME: DAVIDSON-SHUMAN-F20-511.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The committee recognized the importance of the issues raised by the proposal but felt that it was not sufficiently developed to be included in the code at this time. It was indicated that the California State Fire Marshal's guidelines upon which the proposal was based are still in a draft form and not yet ready for adoption. An issue that the committee noted is that there is no correlation change to the IBC and that there is no IFC permit required for these installations which is important since they are typically done on existing buildings and show up unexpectedly. The proposal is also unclear in Section 511.4 as to where the disconnect would be placed in a mixed occupancy building. It was also noted that walkable pathways cannot always be placed over structural members. The committee indicated some support for placing the proposal in an appendix until the issues of concern are resolved.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Tonya L. Hoover, Acting State Fire Marshal, representing California Office of the State Fire Marshal and Robert J. Davidson, Davidson Code Concepts, LLC representing self, request Approval as Modified by this Public Comment.

Modify the proposal as follows:

SECTION 544 605.11 Solar Photovoltaic Power Systems. Solar photovoltaic power systems shall be installed in accordance with this code, the *International Building Code* and NFPA 70.

Exception: Detached Group U non-habitable structures such as parking shade structures, carports, solar trellises, and similar type structures are not subject to the requirements of this section.

544.1 General. The installation of solar photovoltaic installations shall comply with Table 601 and Chapter 16 of the *International Building Code*. The installation shall also comply with Sections 544.2 through 544.11 and NFPA 70.

544.2 605.11.1 Circuit Marking. ~~To facilitate identifying energized electrical lines that connect the solar panels to the inverter, to prevent these conduits from being cut when venting for smoke removal, markings shall be provided to give emergency responders appropriate warning that a solar electric system is present. Marking is required on all interior and exterior dc conduit, enclosures, raceways, cable assemblies, junction boxes, combiner boxes, and disconnects.~~

544.3 605.11.1.1 Materials. The materials used for marking shall be reflective, weather resistant and suitable for the environment. Marking as required in sections 605.11.1.2 through 605.11.1.4 shall have all letters capitalized with a minimum height of 3/8 inch (9.5 mm) white on red background.

544.4.1 605.11.1.2 Marking content and format. The marking shall contain the words "CAUTION: SOLAR ELECTRIC CONNECTED WARNING: PHOTOVOLTAIC POWER SOURCE" ~~in capital letters a minimum of 3/8 inches in height with white letters on a red background.~~

544.4 605.11.1.3 Main service disconnect. ~~For residential occupancies, the marking shall be placed within the main service disconnect. If the main service disconnect is operable with the service panel closed, then the marking shall be placed on the outside cover. For commercial occupancies, the marking shall be placed adjacent to the main service disconnect in a location clearly visible from the location where the lever disconnect is operated.~~

544.5 605.11.1.4 DC conduit, raceways, enclosures, cable assemblies, and junction boxes. ~~Marking shall be provided on all interior and exterior dc conduit, raceways, enclosures, cable assemblies, and junction boxes to alert the fire service to their presence. The marking shall be placed every 10 feet or fraction thereof, at turns and above and below penetrations, and on all dc combiner and junction boxes. Location of Marking. Marking shall be placed on all interior and exterior dc conduit, raceways, enclosures and cable assemblies every 10 feet (3048 mm) within 1 foot (305 mm) of all turns or bends and within 1 foot (305 mm) above and below all penetrations of roof/ceiling assemblies and all walls and /or barriers.~~

544.5.1. Marking content and format. ~~The marking shall contain the words "CAUTION: SOLAR ELECTRIC CONNECTED" in capital letters a minimum of 3/8 inches in height with white letters on a red background.~~

544.5.2 605.11.2 Locations of DC conductors. Conduit, wiring systems, and raceways for photovoltaic circuits shall be located as close as possible to the ridge or hip or valley and from the hip or valley as directly as possible to an outside wall to reduce trip hazards and maximize ventilation opportunities. Conduit runs between sub arrays and to DC combiner boxes shall be installed in a manner that minimizes total amount of conduit on the roof by taking the shortest path from the array to the DC combiner box. The DC combiner boxes shall be located such that conduit runs are minimized in the pathways between arrays. DC wiring shall be installed in metallic conduit or raceways when located within enclosed spaces in a building. Conduit shall run along the bottom of load bearing members.

544.6 Power disconnects. ~~A power disconnect shall be located within 3 feet of the photovoltaic array to provide for de-energizing the DC circuit(s) from the array to the inverter. The disconnect shall be label with reflective lettering.~~

544.7 605.11.3 Access, and pathways for smoke ventilation. ~~Roof access, pathways, and spacing requirements shall be observed provided in order to ensure access to the roof; provide pathways to specific areas of the roof; provide for smoke ventilation operations; and to provide emergency egress from the roof.~~

Exceptions:

1. Requirements relating to ridge, hip, and valleys do not apply to roofs slopes of two units vertical in twelve units horizontal (2:12) or less.
2. Residential structures shall be designed so that each array is no greater than 150 feet (45 720 mm) by 150 feet (45 720 mm) in either axis.
3. The fire chief may allow panels/modules to be located up to the ridge when an alternative ventilation method acceptable to the fire chief has been provided or where the fire chief has determined vertical ventilation techniques will not be employed.

544.8 605.11.3.1 Roof access points. Roof access points shall be defined as an area that does not place ground ladders over openings such as windows or doors, and are located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires, or signs.

544.9 605.11.3.2 Residential systems for one- and two-family residential dwellings. Access shall be provided in accordance with Sections 544.9.4 605.11.3.2.1 through 544.9.3. 605.11.3.2.4

544.9.4 605.11.3.2.1 Residential buildings with hip roof layouts. Panels /modules shall be located in a manner that provides a 3 foot (914 mm) wide clear access pathway from the eave to the ridge on each roof slope where panels/modules are located. The access pathway shall be located at a structurally strong location on the building ~~such as along a underlying bearing wall~~ capable of supporting the live load of fire fighters accessing the roof.

544.9.2 605.11.3.2.2 Residential buildings with a single ridge. Panels/modules shall be located in a manner that provides two 3 foot (914 mm) ~~(2) three foot (3)~~ wide access pathways from the eave to the ridge on each roof slope where panels/modules are located.

544.9.3 605.11.3.2.3 Hips and Valleys: Panels/modules shall be located no closer than ~~one and one-half (1.5) feet~~ 18 inches (457 mm) to a hip or a valley if panels/modules are to be placed on both sides of a hip or valley. If the panels are to be located on only one side of a hip or valley that is of equal length then the panels shall be permitted to be placed directly adjacent to the hip or valley.

544.9.4 605.11.3.2.4 Smoke Ventilation. Panels/modules shall be located no higher than ~~three feet (3)~~ 3 feet (914 mm) below the ridge in order to allow for fire department smoke ventilation operations.

Exception: The fire department is authorized to allow panels to be located ~~two (2) feet below the ridge~~ if a product or method acceptable to the fire department has been provided for ventilation.

544.10 605.11.3.3 All other occupancies. Access shall be provided in accordance with Sections ~~544.10.4 605.11.3.3.1~~ through ~~544.10.3 605.11.3.3.3.~~

Exception: Where it is determined by the *fire code official* that the roof configuration is similar to a one- or two-family dwelling, the *fire code official* may *approve* the residential access and ventilation requirements provided in 605.11.3.2.1 through 605.11.3.2.4.

544.10.4 605.11.3.3.1 Access. There shall be a minimum ~~six (6) feet~~ 6 foot (1829 mm) wide clear perimeter around the edges of the roof.

Exception: If either axis of the building is 250 feet (76 200 mm) or less, there shall be a minimum ~~four feet (4)~~ 4 foot (1290 mm) wide clear perimeter around the edges of the roof.

544.10.2 605.11.3.3.2 Pathways. The solar installation shall be designed to provide designated pathways. The pathways shall meet the following requirements:

1. The pathway shall be over ~~structural members~~ areas capable of supporting the live load of fire fighters accessing the roof
2. The center line axis pathways shall be provided in both axis of the roof. Center line axis pathways shall run ~~on structural members or over the next closest structural member nearest to the center lines of the roof~~ where the roof structure is capable of supporting the live load of firefighters accessing the roof.
3. Shall be straight line not less than 4 feet (1290 mm) clear to skylights and/or ventilation hatches
4. Shall be straight line not less than 4 feet (1290 mm) clear to roof standpipes
5. Shall provide not less than 4 feet (1290 mm) clear around roof access hatch with at least one not less than 4 feet (1290 mm) clear pathway to parapet or roof edge

544.10.3 605.11.3.3.3 Smoke Ventilation. The solar installation shall be designed to meet the following requirements:

1. Arrays shall be no greater than 150 feet (45 720 mm) by 150 feet (45 720 mm) in distance in either axis in order to create opportunities for smoke ventilation operations.
2. Smoke Ventilation options between array sections shall be ~~either one of the following:~~
 - 2.1. ~~a~~ A pathway 8 feet (2438 mm) or greater in width;
 - 2.2. ~~a~~ A 4 feet (1290 mm) or greater in width pathway and bordering ~~on existing roof skylights or ventilation hatches~~ smoke and heat vents;
 - 2.3. ~~or a~~ A 4 feet (1290 mm) or greater in width pathway and bordering 4 foot (1290 mm) x 8 foot (2438 mm) "venting cutouts" every 20 feet (6096 mm) on alternating sides of the pathway

544.14 605.11.4 Ground mounted photovoltaic arrays. Ground mounted photovoltaic arrays shall comply with Sections ~~544.4 605.11~~ through ~~544.6 605.11.2~~ and this section. Setback requirements do not apply to ground-mounted, free standing photovoltaic arrays. A clear brush area of 10 feet (3048 mm) is required for ground mounted photovoltaic arrays.

105.7.14 Solar photovoltaic power systems. A construction permit is required to install or modify Solar photovoltaic power systems.

IBC Section 1511 **Solar Photovoltaic Panels/Modules**

IBC 1511.1 Solar photovoltaic panels/modules. Solar photovoltaic panels/modules installed upon a roof or as an integral part of a roof assembly shall comply with the requirements of this code and the *International Fire Code*.

IBC 1511.1.1 Structural fire-resistance. The structural frame and roof construction supporting the load imposed upon the roof by the photovoltaic panels/modules shall comply with the requirements of Table 601.

IBC Section 3111 **Solar Photovoltaic Panels/Modules**

IBC 3111.1 Solar photovoltaic panels/modules. Solar photovoltaic panels/modules shall comply with the requirements of this code and the *International Fire Code*.

Commenter's Reason: The California Office of the State Fire Marshal (CSFM) supports the National Association of State Fire Marshals (NASFM) proposed changes to the 2009 Edition of the International Fire Code (IFC), F30-09/10 Section 511 Solar Photovoltaic Installations. The CSFM formed a small work group with representatives from the fire service, building officials, and solar industry to develop this public comment proposal base on the CSFM "Guidelines". This proposal seeks to address the ICC Fire Code Committees comments as well as other comments made during and after the ICC code hearings in Baltimore November 2009.

To address the Fire Code Committees comments the CSFM offers the following:

The CSFM/work group disagrees in part with the committees comment that these provisions are "...not sufficiently developed to be in the code..." as these provisions (through the CSFM "Guidelines") are being widely implemented throughout the state to address provisions

missing from the IFC. This proposal fills that missing element/provisions for Solar Photovoltaic Installations and further provides for uniform design and enforcement.

The CSFM's "Guidelines" are still in draft form at this time due to specific California rulemaking procedures that have a process to follow to adopt into regulations. The "Guidelines" would be in draft until the regulations were adopted and approved for statewide application.

The CSFM added IFC Section 105.7.14 to address that a permit is required to install or modify solar photovoltaic systems (see part 2 of this public comment proposal).

Section 605.11.1.3 addresses the main service disconnect in a location clearly visible from the location where the lever disconnect is operated regardless if it is for a residential, commercial or mixed occupancy building.

Sections 605.11.3.2.1 and 605.11.3.3.2 both addresses the walkable pathways over structural members for residential and all other occupancies.

The CSFM/work group feel there is not a need to put the proposal in the appendix, it is in the best interest of both the industry and the fire service to have uniform minimum provisions for application and effective. Additional response below regarding relocation to chapter 6.

Additional modifications to address other comments, alignment with the original "Guidelines", coordination with NFPA 70 and OSHA provisions.

The CSFM/work group recommends that the appropriate area for this proposal should be moved to the IFC Chapter 6 Building Services and Systems; Section 605.11 since 605 addresses electrical equipment, wiring and hazards.

The CSFM removed Section 511.6 for power disconnects because it was not provided for and/or addressed the in the "Guidelines" and the CSFM believes that this issue be address by the individual adopting jurisdictions.

Modifications for the marking content and color scheme are made top avoid conflict the OSHA sign and tag requirements.

Other minor changes made are to give clear and specific requirements for Solar Photovoltaic Power Systems.

This public comment also addresses the need expressed by the committee for references to the IFC in the International Building Code (IBC). IBC Section 1511 and Section 3111 are being added so solar systems are referenced to address roofing requirements, such as supporting the load of these systems to roofs and to structural roof frame and pedestrian walkways, awnings and canopies. Additionally these references are located in both chapter 15 and 31 where the user may look to find provisions for either roof mounted, stand alone or ground mounted solar photovoltaic panels/modules.

Final Action: AS AM AMPC___ D

F36-09/10 605.1

Proposed Change as Submitted

Proponent: Philip M. Chandler, representing New York State Department of State, Office of Fire Protection & Control

Revise as follows:

605.1 Abatement of electrical hazards. ~~Identified electrical hazards shall be abated. Identified hazardous electrical conditions in permanent wiring shall be brought to the attention of the responsible code official.~~ Where it is found that the electrical system in a structure constitutes a hazard to the occupants or the structure by reason of inadequate service, improper fusing, insufficient receptacle and lighting outlets, improper wiring or installation, deterioration or damage, or for similar reasons, the fire code official shall require the defects to be corrected to eliminate the hazard. Electrical wiring, devices, appliances and other equipment that is modified or damaged and constitutes an electrical shock or fire hazard shall not be used.

Reason: The proposed revision will make this section consistent with the requirements of the *International Property Maintenance Code* (IPMC), Section 604.3. The new language clearly identifies important electrical hazards that create a risk of fire and eliminates much ambiguity found in the old language.

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

ICCFILENAME: CHANDLER-F1-605.1.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The proposal contains vague language (e.g., "...or for similar reasons...") and includes a "laundry list" of electrical hazards that is not exhaustive and provides no guidance as to what standards are to be used to judge electrical systems as being deficient. The committee was also concerned that the proposal would put the fire code official and/or the fire department in the role of being an electrical expert.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Philip M. Chandler, representing New York State Department of State, Office of Fire Prevention & Control, requests Approval as Submitted.

Commenter's Reason: It is urged that Code change Proposal F36-09/10 be approved as submitted for the following reasons:

Electrical fires area problem in America. The U.S. Fire Administration estimates that electrical fires in residential occupancies alone take the lives of 360 people each year, injure 1,000, and do \$995 million dollars of damage.¹ The Administration further reports that "most electrical fires result from problems with faulty electrical outlets and old wiring,"² Surprisingly, however, the IFC barely addresses the issue of defects in permanent wiring. The weak language of IFC 605.1, "Identified electrical hazards shall be abated," gives little support or guidance to fire code officials conducting safety inspections of existing buildings. Why not, therefore, provide fire code officials with the precise and informative code language needed to identify and address electrical deficiencies before they cause a fire?

Accordingly, it is proposed that IFC 605.1 be modified and strengthened by importing the provisions of IPMC 604.3. This descriptive language provides a useful set of criteria for the fire code official. Inasmuch as the USFA has specifically identified "old wiring" as a fire hazard, it is certainly appropriate that the IFC also recognizes and specifies the dangerous conditions indicative of electrical systems that have outlived their safe and useful life as well as systems and components that have been improperly installed, modified or have become damaged.

The IFC Committee has criticized the language of IPMC 604.3, calling it a "laundry list," and has denigrated the use of the explanatory expression "or for similar reasons," as being "vague." The Committee's objections are misplaced in this instance, as the language of IPMC 604.3 has not only been vetted through the same process to which this code change proposal is being subjected, but has also proven itself in the field. Further, so-called "laundry lists" are still used to great effect throughout the IFC, including in the remainder of IFC 605.1 not modified by this proposal ("...devices, appliances, and other devices..."). Certainly a referenced standard adds clarity, but there is no one standard, or set of standards presently out there that will adequately do the job here in regards to existing electrical systems and components. NFPA 70, *National Electric Code*, is ostensibly a standard for new construction. NFPA 73, *Electrical Inspection Code for Existing Dwellings*, is just that, a code for dwellings. Until such time as a comprehensive standard for evaluating existing electrical conditions across the full range of occupancy classifications is developed, the tried and true language of IPMC 604.3 proposed for insertion into the IFC is the next best thing.

The Committee has also objected to the strengthening of IFC 605.1 worrying that by so doing, "it would put the fire code official and/or the fire department in the role of being an electrical expert." This line of reasoning, if followed to its logical conclusion, would disqualify all but engineers, physicists and chemists from conducting life safety inspections. Are we worried that Chapter 27 puts the fire inspector in the role of a chemist, able to identify incompatible materials? Are we worried that Chapter 9 puts the fire inspector in the role as a fire protection engineer, able to determine if a complex system is properly functioning? The truth is that the fire code official or firefighter of today must have advanced training and education to function effectively in a rapidly changing, highly technical environment. Obviously they cannot have expertise in every single topic covered by the IFC, but they can, as authorized in IFC 104.7.2, obtain the technical assistance or inspection reports that they need to complete their inspection. But honestly, rocket science is not required to determine that a 15 amp electrical circuit protected by a 30 amp fuse is overloaded and is a fire waiting to happen!

The Committee is apparently quite content that fire code inspectors simply pass off suspected electrical fire hazards to the appropriate building code official. What about those jurisdictions where the fire code official is the building code official as well? What about those jurisdictions where the appropriate building code official only inspects new permitted construction? What about those jurisdictions where as a result of budgetary constraints the building department is unable to respond in a timely fashion to complaints of electrical hazards in existing occupancies? Keep in mind, in many communities, it is the fire code official alone, or for that matter, the fire department alone, that conducts life safety inspections of existing buildings, including occupancies as diverse as high-rise hotels and chip-fabrication facilities. If we as fire protection specialists have only one shot at preventing the next fire, why not make it count! It is quite possible that these inspections constitute the best hope that occupants have of escaping a deadly blaze; why pass the buck?

¹ <http://www.usfa.dhs.gov/citizens/focus/electrical.shtm>. Accessed 2/3/10.

² Ibid.

F37-09/10

605.1.1 (New)

Proposed Changes as Submitted

Proponent: Philip M. Chandler, representing New York State Department of State, Office of Fire Protection & Control

Add new text as follows:

605.1.1 Electrical inspection. In accordance with the provisions of Section 104.7.2, the fire code official is authorized to require an inspection and report on the safety of a structure's electrical system, wiring, devices, appliances and equipment. The inspection and report shall be prepared by a qualified engineer, specialist, laboratory or fire safety specialty organization acceptable to the fire code official.

Reason: The fire code official may have reason to believe that the electrical safety of a structure is compromised, yet lack the highly technical knowledge or specialized skills to make a final determination. Inasmuch as the risk of shock or hazard of fire are very real consequences of defective electrical systems and equipment, this authorization of the fire code official to obtain technical assistance is warranted.

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

ICCFILENAME: CHANDLER-F2-605.1.1.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The committee felt that the proposal would leave out the building official and the electrical inspector. The committee also felt that the proposal is redundant since the code already contains provisions for referring electrical hazards to the appropriate code official

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Philip M. Chandler, representing New York State Department of State, Office of Fire Prevention & Control, requests Approval as Submitted.

Commenter's Reason: It is urged that this code change proposal be adopted as submitted for the following reasons:

All across America, fire code officials, building code officials, and firefighters conduct life safety inspections of existing occupancies of every type. Frequently, they may have reason to believe by virtue of the presence of certain telltale signs that a building's electrical wiring or components are unsafe, posing an unacceptable life safety risk. Yet often because they lack sufficient technical expertise, appropriate tools or personal protective equipment, those conducting inspections are unable to make a final determination without recourse to specialized outside resources. This often is the case when it comes to assessing obsolescence, a leading cause of electrical fires (see comments of Philip M. Chandler on F36 above). This proposal unambiguously grants the authority to fire inspectors to obtain the necessary assistance to get the job done right.

The intention of this proposal is not as the committee has suggested, to "leave out the building code official or electrical inspector," but rather to give the inspector of existing electrical systems and components access to all the technical assistance required to adequately assess conditions where hazards are suspected. Even building code officials or electrical inspectors may need additional information or knowledge to complete their inspection. It is true that this authority to obtain outside assistance is already granted by IFC 104.7.2. It is repeated here because the incidence of electrical fires and their human toll warrant a second mention. It is also important to note that the invaluable provisions of IFC 104.7.2 may be inadvertently lost by those jurisdictions that choose to rewrite Chapter One to better reflect local policy and procedures. The option of getting a second opinion is a right we all cherish when it comes to clarifying issues of our own health, the same option should be available in all jurisdictions when it comes to identifying electrical life safety hazards.

Final Action: AS AM AMPC ____ D

F46-09/10

703.2

Proposed Change as Submitted

Proponent: John Woestman, The Kellen Company, representing the Door Safety Council (DSC)

Revise as follows:

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

Reason: This code proposal addresses the very real issue of maintaining labeled opening protectives by requiring field applied labels to follow the requirements of the third-party certification organization which is accredited for listing the specific opening protective. Ongoing maintenance is now an IFC requirement, and this code change provides an enforceable method of allowing maintenance of labeled protectives.

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

ICCFILENAME: WOESTMAN-F3-1030.2-2.DOC

Public Hearing Results

Committee Action:

Approved as Submitted

Committee Reason: The relabeling of existing fire doors is a common practice and due to the importance of the rating requirements a level of monitoring by a third party to ensure the labeling matches the rating of the door assembly is necessary. It was suggested that the new language could be better located in its own subsection.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Joe Pierce (Chairman), Dallas Fire Department, representing Joint Fire Service Review Committee, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

703.2 Opening protectives. Opening protectives shall be maintained in an operative condition in accordance with NFPA 80. Where ~~required~~ allowed by the fire code official, the application of field applied labels associated with the maintenance of opening protectives shall follow the requirements of the *approved* third-party certification organization accredited for *listing* the opening protective. Fire doors and *smoke barrier* doors shall not be blocked or obstructed or otherwise made inoperable. Fusible links shall be replaced promptly whenever fused or damaged. Fire door assemblies shall not be modified.

Commenter's Reason: The issue is not whether the fire code official "requires" field applied labels, the actual issue is whether the fire code official "allows" field applied labels.

In the listing documentation there are specific criteria for field application of labels. One of the criteria is whether the local code officials allow this practice. IBC 715.4.6.1 states that fire doors must be labeled at the factory. This would apply to new doors or new installations. Now that existing door either has a damaged label, the label is painted over, or the label is gone. The fire code official needs to make a determination as to whether field application of the label is acceptable or not. If field application is allowed, then the certification organization can follow the proper criteria for labeling the opening protective.

Proper maintenance necessitates that the manufacturer's instructions are followed and the listing organization's instructions are followed. The fact is that following proper procedures is required by the code to maintain proper operation of the assemblies and devices; it is required by the manufacturer; and it is required by the listing organization in order to maintain the listing.

Therefore, the phrase of "where required" is proposed to be replaced with "when allowed".

Final Action: AS AM AMPC____ D

F50-09/10

803.6.1, 803.6.2

Proposed Change as Submitted

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

Revise as follows:

803.6.1 General. Expanded vinyl wall or ceiling coverings shall comply with the requirements of Section 803.1.2 using the product mounting system (including adhesive) of actual use. Expanded vinyl wall or ceiling coverings complying with Section 803.1.2 shall not be required to comply with Section 803.1.1.

803.6.2 Compliance alternative. Expanded vinyl wall or ceiling coverings shall be allowed to comply with the requirements for textile wall or ceiling coverings in Section 803.5. When tested in accordance with ASTM E 84 or UL 723, test specimen preparation shall be in accordance with ASTM E 2404 one of the following:

1. The wall or ceiling covering shall have a class A flame spread index in accordance with ASTM E 84 or UL 723 and be protected by automatic sprinklers installed in accordance with Section 903.3.1.1 or 903.3.1.2. Test specimen preparation and mounting shall be in accordance with ASTM E 2404.
2. The wall covering shall meet the criteria of Section 803.5.1.2 when tested in the manner intended for use in accordance with NFPA 265 using the product mounting system (including adhesive) of actual use.
3. The wall or ceiling covering shall meet the criteria of Sections 803.1.2.1 when tested in accordance with NFPA 286 using the product mounting system (including adhesive) of actual use.

Reason: Instead of sending code users to another section, it is best simply to state the requirements for expanded vinyl wall or ceiling covering materials directly. The correct specimen preparation and mounting method for textile, paper and vinyl wall and ceiling coverings tested in accordance with ASTM E 84 (Steiner tunnel) test is ASTM E 2404. The revised text addresses the requirements for wall and ceiling coverings, as appropriate:

1. They point out again that expanded vinyl wall and ceiling coverings are only permitted to be installed when tested in accordance with ASTM E 84 if the compartment is fully protected by sprinklers.
2. The new text also makes it clear that NFPA 265 is inappropriate for testing ceiling coverings since the burner flame does not reach the ceiling.
3. The new text eliminates reference to Method A of NFPA 265, which has been eliminated from the body of the standard. Method A applies only to materials tested in the past.
4. The text also clarifies that testing to NFPA 286 needs to use the correct product mounting system, including adhesive.

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

ICCFILENAME: HIRSCHLER-F1-803.6.1.DOC

Public Hearing Results

Committee Action:

Approved as Submitted

Committee Reason: The committee approved the provisions adding a separate section detailing the testing requirements for expanded vinyl wall coverings to help clarify when and how the various tests apply to these materials. These provisions would apply to existing and newly introduced expanded vinyl wall or ceiling coverings. The provisions correlate with the IBC.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Marcelo M. Hirschler (GBH International), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

~~**803.6 Expanded vinyl wall or ceiling coverings.** Expanded vinyl wall or ceiling coverings shall comply with the requirements of either Section 803.6.1 or 803.6.2.~~

~~**803.6.1 General.** Expanded vinyl wall or ceiling coverings shall comply with the requirements of Section 803.1.2 using the product mounting system (including adhesive) of actual use. Expanded vinyl wall or ceiling coverings complying with Section 803.1.2 shall not be required to comply with Section 803.1.1.~~

~~**803.6.2 Compliance alternative.** Expanded vinyl wall or ceiling coverings shall be allowed to comply with one of the following:~~

1. The wall or ceiling covering shall have a class A flame spread index in accordance with ASTM E 84 or UL 723 and be protected by automatic sprinklers installed in accordance with Section 903.3.1.1 or 903.3.1.2. Test specimen preparation and mounting shall be in accordance with ASTM E 2404.
2. The wall covering shall meet the criteria of Section 803.5.1.2 when tested in the manner intended for use in accordance with NFPA 265 using the product mounting system (including adhesive) of actual use.
3. The wall or ceiling covering shall meet the criteria of Sections 803.1.2.1 when tested in accordance with NFPA 286 using the product mounting system (including adhesive) of actual use.

Commenter's Reason: This public comment is simply reformatting the section in an effort to simplify the language as the revised wording in Section 803.6.1 is also addressed within item 3 of the revised section 803.6.2. This will streamline the language from three sections into one.

Final Action: AS AM AMPC _____ D

F51-09/10

804.3 (New), Chapter 47

Proposed Change as Submitted

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

1. Add new text as follows:

804.3 Interior floor finish Newly introduced interior floor finish and floor covering materials shall comply with Sections 804.3.1 through 804.3.3.

Exception: Floor finishes and coverings of a traditional type, such as wood, vinyl, linoleum or terrazzo, and resilient floor covering materials that are not comprised of fibers.

804.3.1 Classification. Interior floor finish and floor covering materials required by Section 804.3.3 to be of Class I or II materials shall be classified in accordance with NFPA 253. The classification referred to herein corresponds to the classifications determined by NFPA 253 as follows: Class I, 0.45 watts/cm² or greater; Class II, 0.22 watts/cm² or greater.

804.3.2 Testing and identification. Interior floor finish and floor covering materials shall be tested by an approved agency in accordance with NFPA 253 and identified by a hang tag or other suitable method so as to identify the manufacturer or supplier and style, and shall indicate the interior floor finish or floor covering classification according to Section 804.3.1. Carpet-type floor coverings shall be tested as proposed for use, including underlayment. Test reports confirming the information provided in the manufacturer's product identification shall be furnished to the building official upon request.

804.3.3 Interior floor finish requirements. Interior floor covering materials shall comply with Sections 804.3.3.1 and 804.3.3.2 and interior floor finish materials shall comply with Section 804.3.4.2.

804.3.3.1 Pill test. In all occupancies, interior floor covering materials shall comply with the requirements of the DOC FF-1 Apill test@ (CPSC 16 CFR, Part 1630) or of ASTM D 2859.

804.3.3.2 Minimum critical radiant flux. In all occupancies, interior floor finish and floor covering materials in exit enclosures, exit passageways, corridors and rooms or spaces not separated from corridors by full-height partitions extending from the floor to the underside of the ceiling shall withstand a minimum critical radiant flux. The minimum critical radiant flux shall not be less than Class I in Groups I-1, I-2 and I-3 and not less than Class II in Groups A, B, E, H, I-4, M, R-1, R-2 and S.

Exception: Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, Class II materials are permitted in any area where Class I materials are required and materials complying with DOC FF-1 A pill test@ (CPSC 16 CFR, Part 1630) or with ASTM D 2859 are permitted in any area where Class II materials are required.

(Renumber subsequent section)

2. Add new standard to Chapter 47 as follows:

ASTM D 2859 (2006) Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials

Reason: Somehow, requirements for interior floor finish are missing in the IFC, while such requirements exist in the IBC as well as in the Life Safety Code and the Uniform Fire Code. In this proposal the wording has been taken from the IBC, with four changes. The key change is that this section applies only to "newly introduced" interior floor finish materials, in view of the fact that the IFC is for existing buildings. The other changes are as shown below:

1. The "pill test" is applied to all newly introduced carpets and carpet-like floor finish materials, in view of the fact that the federal government, through CPSC, regulates all carpets and rugs based on 16 CFR 1630 since the 1970s.
2. In the IBC there is confusion because section 804.4 states that "interior floor finish and floor covering materials in exit enclosures, exit passageways, corridors and rooms or spaces not separated from corridors by full-height partitions extending from the floor to the underside of the ceiling shall withstand a minimum critical radiant flux" and then section 804.4.1 states that "interior floor finish and floor covering materials in exit enclosures, exit passageways and corridors shall not be ...". This leaves undefined what minimum critical radiant flux is required for "interior floor finish and floor covering materials in rooms or spaces not separated from corridors by full-height partitions extending from the floor to the underside of the ceiling". Since section 804.2 only distinguishes two classes for NFPA 253, the logical conclusion is that the words are missing and that these rooms or spaces have to meet the same requirements as the corridors from which they are not separated. A proposal has been submitted to the IBC to make this correction.

3. ASTM D 2859, which is equivalent to 16 CFR 1630 and is used extensively outside of the US, while 16 CFR 1630 is only a federal mandate, is added as an alternate. In fact, ASTM D 2859 is the standard that complies with the ICC policy on referenced standards. A proposal has been submitted to the IBC to allow ASTM D 2859 as an alternate test method to 16 CFR 1630.

The fire hazard of newly introduced floor coverings (which basically means carpets only) is the same in new buildings and in existing buildings. Therefore the IFC should be consistent with the IBC.

An alternate approach: If the addition of ASTM D 2859 is not desired by the committee, please use the following text:

804.3 Interior floor finish.

804.3.1 General. Newly introduced interior floor finish and floor covering materials shall comply with Sections 804.3.2 through 804.3.4.

Exception: Floor finishes and coverings of a traditional type, such as wood, vinyl, linoleum or terrazzo, and resilient floor covering materials that are not comprised of fibers.

804.3.2 Classification. Interior floor finish and floor covering materials required by Section 804.3.4 to be of Class I or II materials shall be classified in accordance with NFPA 253. The classification referred to herein corresponds to the classifications determined by NFPA 253 as follows: Class I, 0.45 watts/cm² or greater; Class II, 0.22 watts/cm² or greater.

804.3.3 Testing and identification. Interior floor finish and floor covering materials shall be tested by an approved agency in accordance with NFPA 253 and identified by a hang tag or other suitable method so as to identify the manufacturer or supplier and style, and shall indicate the interior floor finish or floor covering classification according to Section 804.3.2. Carpet-type floor coverings shall be tested as proposed for use, including underlayment. Test reports confirming the information provided in the manufacturer's product identification shall be furnished to the building official upon request.

804.3.4 Interior Floor Finish Requirements.

804.3.4.1 Pill test. In all occupancies, newly introduced floor covering materials shall comply with the requirements of the DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630).

804.3.4.2 Minimum critical radiant flux. In all occupancies, newly introduced interior floor finish and floor covering materials in exit enclosures, exit passageways, corridors and rooms or spaces not separated from corridors by full-height partitions extending from the floor to the underside of the ceiling shall withstand a minimum critical radiant flux. The minimum critical radiant flux shall not be less than Class I in Groups I-1, I-2 and I-3 and not less than Class II in Groups A, B, E, H, I-4, M, R-1, R-2 and S.

Exception: Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, Class II materials are permitted in any area where Class I materials are required and materials complying with DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630) are permitted in any area where Class II materials are required.

(Renumber subsequent section)

Cost Impact: The cost of carpets that meet Class I or Class II in accordance with NFPA 253 is higher than the cost of carpets that are not classified.

Analysis: A review of the standard(s) proposed for inclusion in the code, ASTM D 2859-2006, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

CPSC 16 CFR, Part 1630 is already referenced in the IBC and NFPA 253 is already referenced in the IFC.

ICCFILENAME: HIRSCHLER-F10-804.3.DOC

Public Hearing Results

Note: The following analysis was not in the Code Change monograph but was published on the ICC website at <http://www.iccsafe.org/cs/codes/Documents/2009-10cycle/ProposedChanges/Standards-Analysis.pdf> :

Analysis: Review of the proposed new standard ASTM D2859 (2006) indicated that, in the opinion of ICC staff, the standard did comply with ICC standards criteria.

Committee Action:

Disapproved

Committee Reason: There were a couple concerns with this proposal including the inconsistencies between the current sections within the IBC and the language proposed for the IFC. In addition there were several typographical errors and the new standard being introduced was not currently referenced in that portion of the IBC.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Marcelo M. Hirschler (GBH International) representing American Fire Safety Council, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

804.3 New Interior Floor Finish. ~~Newly introduced~~ New interior floor finish and floor covering materials shall comply with Sections 804.3.1 through 804.3.3.

Exception: Floor finishes and coverings of a traditional type, such as wood, vinyl, linoleum or terrazzo, and resilient floor covering materials that are not comprised of fibers.

804.3.1 Classification. Interior floor finish and floor covering materials required by Section 804.3.3.2 to be of Class I or II materials shall be classified in accordance with NFPA 253. The classification referred to herein corresponds to the classifications determined by NFPA 253 as follows: Class I, 0.45 watts/cm² or greater; Class II, 0.22 watts/cm² or greater.

804.3.2 Testing and identification. Interior floor finish and floor covering materials shall be tested by an approved agency in accordance with NFPA 253 and identified by a hang tag or other suitable method so as to identify the manufacturer or supplier and style, and shall indicate the interior floor finish or floor covering classification according to Section 804.3.1. Carpet-type floor coverings shall be tested as proposed for use, including underlayment. Test reports confirming the information provided in the manufacturer's product identification shall be furnished to the building official upon request.

804.3.3 Interior Floor Finish Requirements. New Interior floor coverings materials shall comply with Sections 804.3.3.1 and 804.3.3.2 and interior floor finish materials shall comply with Section 804.3.1.

804.3.3.1 Pill test. In all occupancies, new floor covering materials shall comply with the requirements of the DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630) or of ASTM D 2859.

804.3.3.2 Minimum critical radiant flux. In all occupancies, new interior floor finish and floor covering materials in exit enclosures, exit passageways, corridors and rooms or spaces not separated from corridors by full-height partitions extending from the floor to the underside of the ceiling shall withstand a minimum critical radiant flux. The minimum critical radiant flux shall not be less than Class I in Groups I-1, I-2 and I-3 and not less than Class II in Groups A, B, E, H, I-4, M, R-1, R-2 and S.

Exception: Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, Class II materials are permitted in any area where Class I materials are required and materials complying with DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630) or with ASTM D 2859 are permitted in any area where Class II materials are required.

804.4 804.3 Interior Floor Wall base. Interior floor wall base that is 6 inches (152 mm) or less in height shall be tested in accordance with NFPA 253 and shall not be less than Class II. Where a Class I floor finish is required, the floor-wall base shall be Class I. The classification referred to herein corresponds to the classifications determined by NFPA 253 as follows: Class I, 0.45 watts/cm² or greater; Class II, 0.22 watts/cm² or greater.

Exception: Interior trim materials that comply with Section 804.1.

(Portions of the proposal not shown remain unchanged)

Commenter's Reason: The technical committee was concerned about two issues: (a) that the new language was inconsistent with the language in the IBC and (b) that this could be considered to apply to used carpets/floor coverings that are being brought in from a relative or into a new occupancy (apartment to apartment) could be covered. The first concern was addressed by the IBC-FS committee, which met after the IFC committee, and approved both FS137 and FS 138. By approving these proposals the IBC-FS committee incorporated the language that was missing in both the IBC and the IFC (probably via typographical errors) and the new standard. The second concern is addressed in this comment by the language change.

Therefore, the code language proposed for the IFC in this proposal, as modified by the comment, addresses both issues: instead of "newly introduced" the language would now read "new" (in three places) and the remaining language is fully consistent with the IBC, except that it applies only to "new" interior floor finish.

For information, as a result of the approval of FS137 and FS138, the section of the IBC reads as follows.

Section 804 – Interior Floor Finish

804.1 General. *Interior floor finish* and floor covering materials shall comply with Sections 804.2 through 804.4.1.

Exception: Floor finishes and coverings of a traditional type, such as wood, vinyl, linoleum or terrazzo, and resilient floor covering materials that are not comprised of fibers.

804.2 Classification. *Interior floor finish* and floor covering materials required by Section 804.4.1 to be of Class I or II materials shall be classified in accordance with NFPA 253. The classification referred to herein corresponds to the classifications determined by NFPA 253 as follows: Class I, 0.45 watts/cm² or greater; Class II, 0.22 watts/cm² or greater.

804.3 Testing and identification. Interior floor finish and floor covering materials shall be tested by an agency in accordance with NFPA 253 and identified by a hang tag or other suitable method so as to identify the manufacturer or supplier and style, and shall indicate the interior floor finish or floor covering classification according to Section 804.2. Carpet-type floor coverings shall be tested as proposed for use, including underlayment. Test reports confirming the information provided in the manufacturer's product identification shall be furnished to the building official upon request.

804.4 Interior floor finish requirements.

804.4.1 Pill test. In all occupancies, floor covering materials shall comply with the requirements of the DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630) or with ASTM D 2859.

804.4.2 Minimum critical radiant flux. In all occupancies, interior floor finish and floor covering materials in exit enclosures, exit passageways, corridors and rooms or spaces not separated from corridors by full-height partitions extending from the floor to the underside of the ceiling shall withstand a minimum critical radiant flux. The minimum critical radiant flux shall not be less than Class I in Groups I-1, I-2 and I-3 and not less than Class II in Groups A, B, E, H, I-4, M, R-1, R-2 and S.

~~**804.4 Interior Floor Finish Requirements** In all occupancies, interior floor finish and floor covering materials in exit enclosures, exit passageways, corridors and rooms or spaces not separated from corridors by full-height partitions extending from the floor to the underside of the ceiling shall withstand a minimum critical radiant flux as specified in Section 804.4.1.~~

~~**804.4.1 Minimum critical radiant flux.** Interior floor finish and floor covering materials in exit enclosures, exit passageways and corridors shall not be less than Class I in Groups I-1, I-2 and I-3 and not less than Class II in Groups A, B, E, H, I-4, M, R-1, R-2 and S. In all areas, floor covering materials shall comply with the DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630).~~

Exception: Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, Class II materials are permitted in any area where Class I materials are required and materials complying with DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630) or with ASTM D 2859 are permitted in any area where Class II materials are required.

Final Action: AS AM AMPC _____ D

F52-09/10

805.1 (New)

Proposed Change as Submitted

Proponent: Marcelo M. Hirschler, GBH International

Add new text as follows:

805.1 Ignition by cigarettes. Upholstered furniture newly introduced into occupancies regulated by this code shall comply with 805.1.1. Mattresses newly introduced into occupancies regulated by this code shall comply with 805.1.2.

805.1.1 Upholstered furniture. Newly introduced upholstered furniture shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with one of the following:

1. Mocked-up composites of the upholstered furniture shall have a char length not exceeding 1.5 inches (38 mm) when tested in accordance with NFPA 261.
2. The components of the upholstered furniture shall meet the requirements for Class I when tested in accordance with NFPA 260.

805.1.2 Mattresses. Newly introduced mattresses shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with DOC 16 CFR Part 1632 and shall have a char length not exceeding 2 inches (51 mm).

(Renumber subsequent sections)

Reason: Mattresses in the United States have been required to meet 16 CFR 1632 by the Consumer Product Safety Commission since the 1970s. There are no new mattresses sold legally in the US that are not compliant with 16 CFR 1632. As an example, the web site by ISPA (International Sleep Products Association)

(http://www.sleepproducts.org/Content/NavigationMenu/Advocacy_Issues/ISPA_Position_Papers/Flammability_Position_Paper.htm) states as follows: "ISPA Position: ISPA supports the national flammability standards for mattresses codified at 16 C.F.R. Parts 1632 and 1633 promulgated by the U.S. Consumer Product Safety Commission (CPSC) [linked text]. Part 1632 requires that mattresses resist a smoldering cigarette ignition, which has been in place since the mid-1970s. Part 1633, which will become effective July 1, 2007, requires that mattresses resist an open-flame ignition. ISPA also seeks a national standard that addresses the flammability of bedclothes (top-of-the-bed products such as pillows, comforters and mattress pads), given that these are usually the first items ignited in a bedroom fire. Background: The mattress industry takes its product stewardship responsibilities seriously. For over 30 years, the mattress industry has actively supported regulatory efforts to develop flammability standards, public

education initiatives and basic scientific research targeted at reducing residential fire casualties and property loss. In the early 1970s, we participated in the development of 16 C.F.R. Part 1632."

There is no mandatory federal flammability regulation for upholstered furniture in the US. However basically, manufacturers of both residential and contract upholstered furniture support the need for their products to meet cigarette ignition resistance requirements.

Residential upholstered furniture: the UFAC (Upholstered Furniture Action Council) web site (www.ufac.org) states: "The Upholstered Furniture Action Council was founded in 1978 to make upholstered furniture more resistant to ignition from smoldering cigarettes which are the leading cause of upholstery fires in the home. Household fires from smoldering ignition have been reduced substantially since its inception. According to the latest figures there has been a 79.3% decline in the number of upholstered furniture fires from cigarette ignition." The web site also states: "Background: In 1970, federal government agencies proposed mandatory safety standards to reduce the potential fire hazards posed by the cigarette ignition of mattresses, carpeting and upholstered furniture. Mandatory standards were imposed for mattresses and carpeting. When the Consumer Product Safety Commission, (CPSC) began looking at upholstered furniture, UFAC was formed to allow upholstered furniture manufacturers the opportunity to work with CPSC in a meaningful way to design safety standards which are effective, cost effective and workable from a manufacturing standpoint. The only logical course of action for the furniture industry was to create a voluntary program that would develop a better safety record for the industry, at a lower cost, than the proposed government regulations." UFAC administers the program that is responsible for the golden hangtags that are found on residential upholstered furniture and indicate that the furniture has passed the UFAC test. The UFAC web site lists the manufacturers (<http://www.ufac.org/mfglist.htm>) and the retailers (<http://www.ufac.org/retailerslist.htm>) that comply with their test. UFAC represents the major manufacturers of residential upholstered furniture. Their web site indicates that the UFAC test is identical to NFPA 260 (<http://www.ufac.org/method11.htm>).

Institutional upholstered furniture: The Business & Institutional Home Furnishings Alliance (BIFMA) was the developer of the standard test that became NFPA 261 (originally known as the BIFMA test). Contract or institutional upholstered furniture now meets either NFPA 260 (UFAC test) or NFPA 261 and is resistant to cigarette ignition resistance. BIFMA is listed in the UFAC web site as a UFAC supporting organization.

Therefore, all newly introduced mattresses and upholstered furniture should be required to meet the appropriate smoldering ignition resistance tests.

Cost Impact: The code change proposal will not increase the cost of construction, as this is normal use.

Analysis: Standards NFPA 260 and 261 and DOC 16 CFR Part 1632 are currently referenced in the IFC.

ICCFILENAME: HIRSCHLER-F17-805.1.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The proposal was disapproved related to concerns with enforceability. These provisions would be applicable to all occupancies which seemed too broad and application. The proposed text would require that anytime furniture is taken from one building to another, such as one apartment building to another, that the furniture would need to meet this requirement.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment 1:

Marcelo M. Hirschler (GBH International) representing American Fire Safety Council, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

805.1 Ignition by cigarettes. ~~New upholstered furniture newly introduced into occupancies regulated by this code shall comply with 805.1.1. Mattresses newly introduced into occupancies regulated by this code shall comply with 805.1.2.~~

805.1.1 Upholstered furniture. ~~Newly introduced~~ New upholstered furniture shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with one of the following:

1. Mocked-up composites of the upholstered furniture shall have a char length not exceeding 1.5 inches (38 mm) when tested in accordance with NFPA 261.
2. The components of the upholstered furniture shall meet the requirements for Class I when tested in accordance with NFPA 260.

805.1.2 Mattresses. ~~Newly introduced mattresses shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with DOC 16 CFR Part 1632 and shall have a char length not exceeding 2 inches (51 mm).~~

(Renumber subsequent sections)

Commenter's Reason: The technical committee was concerned that this could be considered to apply to used upholstered furniture that is being brought in from a relative or into a new occupancy (apartment to apartment). Such used items would not be covered with this language. The concern about used items is addressed in this comment by the language change from "newly introduced" to "new". This comment addresses upholstered furniture only.

It needs to be pointed out that the test for addressing cigarette ignition of residential furniture (NFPA 260) is the same test as the UFAC test (Upholstered Furniture Action Council test) that residential furniture manufacturers have been required by their trade association to comply with, on a voluntary basis, since 1978 and that such compliance is shown by the golden hangtags.

Also, NFPA 261 is the test that was originally developed by BIFMA (the Business & Institutional Furniture Manufacturer's Association, note that the original proposal misidentified the name of this association) for compliance by institutional upholstered furniture, on a voluntary basis.

Public Comment 2:

Marcelo M. Hirschler (GBH International) representing American Fire Safety Council, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

~~805.1 Ignition by cigarettes. Upholstered furniture newly introduced into occupancies regulated by this code shall comply with 805.1.1. New mattresses newly introduced into occupancies regulated by this code shall comply with 805.1.2.~~

~~805.1.1 Upholstered furniture. Newly introduced upholstered furniture shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with one of the following:~~

- ~~1. Mocked-up composites of the upholstered furniture shall have a char length not exceeding 1.5 inches (38 mm) when tested in accordance with NFPA 261.~~
- ~~2. The components of the upholstered furniture shall meet the requirements for Class I when tested in accordance with NFPA 260.~~

~~805.1.2 Mattresses. Newly introduced mattresses shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with DOC 16 CFR Part 1632 and shall have a char length not exceeding 2 inches (51 mm).~~

(Renumber subsequent sections)

Commenter's Reason: The technical committee was concerned that this could be considered to apply to used mattresses that are being brought in from a relative or into a new occupancy (apartment to apartment). Such used items would not be covered with this language. The concern about used items is addressed in this comment by the language change from "newly introduced" to "new". This comment addresses mattresses only.

It needs to be pointed out that DOC 16 CFR Part 1632 is a requirement for all mattresses sold in the United States since the 1970s, as administered by the Consumer Product Safety Commission, for resistance to cigarette ignition. Therefore all new mattresses introduced in the US now would meet this requirement.

Final Action: AS AM AMPC____ D

F54-09/10

805.5 (New)

Proposed Change as Submitted

Proponent: Carl Ogburn, Chestnut Ridge Foam

Add new text as follows:

805.5 Group A-2 occupancies intended for food or drink consumption. The requirements of Sections 805.5.1 through 805.5.1.3 shall apply to Group A-2 occupancies intended for food or drink consumption.

805.5.1 Upholstered furniture. Newly introduced upholstered furniture shall meet the requirements of Sections 805.5.1.1 through 805.5.1.3

805.5.1.1 Ignition by cigarettes. Newly introduced upholstered furniture shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with one of the following:

1. Mocked-up composites of the upholstered furniture shall have a char length not exceeding 1¹/₂ inches (38 mm) when tested in accordance with NFPA 261, or
2. The components of the upholstered furniture shall meet the requirements for Class I when tested in accordance with NFPA 260.

805.5.1.2 Heat release rate. Newly introduced upholstered furniture shall have limited rates of heat release when tested in accordance with ASTM E 1537 or California Technical Bulletin 133, as follows:

1. The peak rate of heat release for the single upholstered furniture item shall not exceed 80 kW.

Exception: Upholstered furniture in rooms or spaces protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.

2. The total energy released by the single upholstered furniture item during the first 10 minutes of the test shall not exceed 25 MJ.

Exception: Upholstered furniture in rooms or spaces protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.

805.5.1.3 Identification. Upholstered furniture shall bear the label of an approved agency, confirming compliance with the requirements of Sections 805.5.1.1 and 805.5.1.2.

Reason: CA TB 133, which is referenced in the IFC, is a standard issued by the California Bureau of Home Furnishings and Thermal Insulation (CBHF) and is equivalent to ASTM E 1537, with the pass/fail criteria contained in the proposal. This proposal would make the same requirements for bars and night clubs than is now used for some other occupancies, such as Groups I-1, I-2, I-3 and R-2. Experience shows that if a bar or night club is not sprinklered the potential for big fires is large. Approval of this proposal would ensure that furniture is not the cause of a big fire with many fatalities.

Cost Impact: CA TB 133 furniture is more expensive than standard furniture.

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The proposal was disapproved as it was felt that regulating furniture in this way in Group A occupancies intended for food or drink was overly restrictive and would be difficult to enforce. This would prohibit the use of antique furniture. Many of the occupancies would be required to be sprinklered and the phrase "food or drink" would include Group A-2 occupancies serving both alcoholic and non-alcoholic beverages.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Marcelo M. Hirschler (GBH International), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

805.5 Group A-2 occupancies intended for food or drink consumption of alcoholic drinks. The requirements of Sections 805.5.1 through 805.5.1.3 shall apply to Group A-2 occupancies intended for ~~food or drink~~ consumption of alcoholic drinks.

805.5.1 Upholstered furniture. ~~New Newly introduced~~ upholstered furniture shall meet the requirements of Sections 805.5.1.1 through 805.5.1.3

805.5.1.1 Ignition by cigarettes. ~~New Newly introduced~~ upholstered furniture shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with one of the following:

1. Mocked-up composites of the upholstered furniture shall have a char length not exceeding 1½ inches (38 mm) when tested in accordance with NFPA 261, or
2. The components of the upholstered furniture shall meet the requirements for Class I when tested in accordance with NFPA 260.

805.5.1.2 Heat release rate. ~~New Newly introduced~~ upholstered furniture shall have limited rates of heat release when tested in accordance with ASTM E 1537 or California Technical Bulletin 133, as follows:

1. The peak rate of heat release for the single upholstered furniture item shall not exceed 80 kW.

Exception: Upholstered furniture in rooms or spaces protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.

- The total energy released by the single upholstered furniture item during the first 10 minutes of the test shall not exceed 25 MJ.

Exception: Upholstered furniture in rooms or spaces protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.

805.5.1.3 Identification. Upholstered furniture shall bear the label of an approved agency, confirming compliance with the requirements of Sections 805.5.1.1 and 805.5.1.2.

Commenter's Reason: The technical committee was concerned about two key issues: (a) that this could be considered to apply to antique or used upholstered furniture that are being brought in from elsewhere and (b) that this would apply to Group A2 occupancies such as fast-food places and other occupancies that do not serve alcoholic beverages. Both concerns are addressed by the comment. Such antique or used items would not be covered with this language. The concern is addressed in this comment by the language change from "newly introduced" to "new". The concern about food and non alcoholic drinks is addressed in this comment by the language change to specifically address assembly occupancies intended for consumption of alcoholic drinks.

As stated by the proponent, experience shows that if a bar or night club is not sprinklered the potential for big fires is large. Approval of this proposal, as amended, would ensure that furniture is not the cause of a big fire with many fatalities.

Final Action: AS AM AMPC _____ D

F55-09/10

805.5 (New)

Proposed Change as Submitted

Proponent: Carl Ogburn, Chestnut Ridge Foam

Add new text as follows:

805.5 Group E Occupancies other than day care facilities. The requirements of Sections 805.5.1 through 805.5.1.3 shall apply to Group E occupancies other than Group E day care facilities.

805.5.1 Upholstered furniture. Newly introduced upholstered furniture shall meet the requirements of Sections 805.5.1.1 through 805.5.1.3

805.5.1.1 Ignition by cigarettes. Newly introduced upholstered furniture shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with one of the following:

1. Mocked-up composites of the upholstered furniture shall have a char length not exceeding 1¹/₂ inches (38 mm) when tested in accordance with NFPA 261; or
2. The components of the upholstered furniture shall meet the requirements for Class I when tested in accordance with NFPA 260.

805.5.1.2 Heat release rate. Newly introduced upholstered furniture shall have limited rates of heat release when tested in accordance with ASTM E 1537 or California Technical Bulletin 133, as follows:

1. The peak rate of heat release for the single upholstered furniture item shall not exceed 80 kW.

Exception: Upholstered furniture in rooms or spaces protected by an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1.

2. The total energy released by the single upholstered furniture item during the first 10 minutes of the test shall not exceed 25 MJ.

Exception: Upholstered furniture in rooms or spaces protected by an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1.

805.5.1.3 Identification. Upholstered furniture shall bear the label of an *approved* agency, confirming compliance with the requirements of Sections 805.5.1.1 and 805.5.1.2.

Reason: CA TB 133, which is referenced in the IFC, is a standard issued by the California Bureau of Home Furnishings and Thermal Insulation (CBHF) and is equivalent to ASTM E 1537, with the pass/fail criteria contained in the proposal. This proposal would make the same requirements for educational establishments (other than day care occupancies) than is now used for some other occupancies, such as Groups I-1, I-2, I-3 and R-2010 ICC FINAL ACTION AGENDA

2. Educational facilities are ones where so many young people are potentially exposed and vulnerable. Approval of this proposal would ensure that furniture is not the cause of a big fire with many fatalities.

Cost Impact: CA TB 133 furniture is more expensive than standard furniture.

ICCFILENAME: OGBURN-F2-805.5-2.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The proposal was disapproved as loss data was not presented to justify the regulation of furnishings in Group E occupancies. In addition, the more vulnerable occupants in Group E occupancies are excluded which are those found in Group E Daycare facilities. The committee also felt that the enforcement of these requirements would be difficult.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Marcelo M. Hirschler (GBH International), requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

805.5 Group E Occupancies other than day care facilities. The requirements of Sections 805.5.1 through 805.5.1.3 shall apply to ~~Group E occupancies other than~~ Group E day care facilities.

805.5.1 Upholstered furniture. ~~New Newly introduced~~ upholstered furniture shall meet the requirements of Sections 805.5.1.1 through 805.5.1.3

805.5.1.1 Ignition by cigarettes. ~~New Newly introduced~~ upholstered furniture shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with one of the following:

1. Mocked-up composites of the upholstered furniture shall have a char length not exceeding 1 1/2 inches (38 mm) when tested in accordance with NFPA 261; or
2. The components of the upholstered furniture shall meet the requirements for Class I when tested in accordance with NFPA 260.

805.5.1.2 Heat release rate. ~~New Newly introduced~~ upholstered furniture shall have limited rates of heat release when tested in accordance with ASTM E 1537 or California Technical Bulletin 133, as follows:

1. The peak rate of heat release for the single upholstered furniture item shall not exceed 80 kW.

Exception: Upholstered furniture in rooms or spaces protected by an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1.

2. The total energy released by the single upholstered furniture item during the first 10 minutes of the test shall not exceed 25 MJ.

Exception: Upholstered furniture in rooms or spaces protected by an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1.

805.5.1.3 Identification. Upholstered furniture shall bear the label of an *approved* agency, confirming compliance with the requirements of Sections 805.5.1.1 and 805.5.1.2.

Commenter's Reason: The technical committee was concerned about two key issues: (a) that this could be considered to apply to used upholstered furniture that are being brought in from elsewhere and (b) that this would apply to Group E occupancies that had lower risk factors than day-care facilities. Both concerns are addressed by the comment. Such used items would not be covered with this language. The concern is addressed in this comment by the language change from "newly introduced" to "new". The concern about day-care centers is addressed in this comment by the language change to restricting the application specifically to day-care facilities.

Final Action: AS AM AMPC____ D

F64-09/10
901.9 (New)

Proposed Change as Submitted

Proponent: Rick Sheets, Fire Committee Chair, Brinks Home Security, representing National Burglar and Fire Alarm Association

Add new text as follows:

901.9 Discontinuation or change of service. Notice shall be made to the fire code official whenever contracted alarm services for monitoring or testing or inspection of an existing fire alarm system are terminated for any reason, or a change in alarm monitoring provider or other service provider is made. Notice shall be made in writing, to the fire code official by the building owner and where required, by the alarm service provider being terminated.

Reason: It is, and should always remain, the responsibility of the commercial property owner to maintain their building(s) to code. The code prohibits the "removal of or tampering with equipment" and "appurtenances", and in 901.4 of this code states that "fire protection systems shall be maintained in accordance with the original installation standards for that system", yet no such language is provided for non-tangible services. Any contracted services for remote station monitoring and the required testing of equipment in place at the time of acceptance, could be cancelled after the Acceptance Test without notifying the code official. This is of concern for many reasons:

1. The alarm service provider of record may be replaced with non-licensed, non-registered, non-qualified and non-approved personnel or methods.
2. Due to non-payment of fees by the property owner, the alarm service provider may have stopped (or will soon stop) monitoring, repairing and testing of the fire alarm system.
3. If an alarm service provider no longer provides monitoring, repairing or testing services due to non-payment they cannot be seen by the code official as being at fault.

Since by code, the building owner is responsible for keeping their building and fire alarm system in proper working condition, part of that responsibility lies in the fact that they are paying their bills to their alarm service provider. In any other circumstance nonpayment is merely a contract dispute between customer and provider. However, since the service being provided is mandated by code (monitoring and testing) the service provider gets caught in the middle of a complex situation. The addition of this rule will provide the proper notifications to be made before discontinuance of required services.

While the impairment coordinator should be the one to inform the fire official of these types of changes, they may be reluctant to do so because they'd be admitting that these services have been stopped as a cost cutting measure. Allowing the alarm service provider to also notify the fire code official of imminent cessation of service provides a cross-check to ensure the proper continuation of services present at the time of acceptance remain in effect. If another service provider has been procured by the building owner this notification allows the fire code official an opportunity to make sure any required licenses and permits are in place.

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

ICCFILENAME: SHEETS-F6-901.8.2.DOC

Public Hearing Results

Committee Action:

Approved as Modified

Modify the proposal as follows:

901.9 Discontinuation or change of service. Notice shall be made to the fire code official whenever contracted alarm services for monitoring or testing or inspection of an existing fire alarm system are terminated for any reason, or a change in alarm monitoring provider or other service provider is made. Notice shall be made in writing, to the fire code official ~~by the building owner and where required, by the alarm service provider being terminated.~~

Committee Reason: The committee felt that it was necessary for the fire official to be notified when the alarm system was no longer being maintained or monitored. One concern was that the language as proposed would put this responsibility on the building owner which may be the one who does not understand the significance of the problem and would not notify the fire code official. Therefore a modification was made to remove the building owner and place the responsibility to contact the Fire official on the alarm service provider. This concept was equated to auto insurance companies notifying states when drivers fail to pay their premiums on their insurance.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Steve Orlowski representing National Association of Home Builders (NAHB), requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

901.9 Discontinuation or change of service. Notice shall be made to the fire code official whenever contracted alarm services for monitoring or testing or inspection of an existing fire alarm system are terminated for any reason, or a change in alarm monitoring provider or other service provider is made. Notice shall be made in writing, to the fire code official by the building owner. ~~by the alarm service provider being terminated.~~

Commenter's Reason: Since the beginning of most model codes, the owner has been the primary person responsible for the maintenance of all life safety and property protection systems within their building. This proposed change, based on the supporting reason statement had little to do with safety and continued service, but more so as a means for the service provider to utilize the code to force the owner to make payments. As for the modification made by the fire committee, taking the building owner out of the equation does little to support the responsibilities put upon the building owner in other sections of this code. If the building owner terminates service or hires another service provider, then it should be the responsibility of the building owner to insure that the local fire department or authority having jurisdiction is notified.

Public Comment 2:

Jeffrey M. Shapiro, PE, International Code Consultants, representing National Multi Housing Council, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

901.9 Discontinuation or change of service. ~~For fire alarm systems required to be monitored by this code,~~ notice shall be made to the fire code official whenever ~~contracted alarm monitoring services for monitoring or testing or inspection of an existing fire alarm system~~ are terminated for any reason, or a change in alarm monitoring provider or other service provider is made. Notice shall be made in writing, to the fire code official by the alarm monitoring service provider being terminated.

Commenter's Reason: The code does not require all fire alarm systems to be monitored, and for systems that are not required to be monitored, there is no reason that monitoring cannot be terminated without notifying the fire code official. When in doubt about whether monitoring is required, the alarm monitoring company could err on the side of conservatism and send a notice.

Likewise, because there is no requirement in the code that an owner contract with a fire alarm service provider to test or inspect a fire alarm system, requiring notice of terminating such a contract is beyond the scope of the code. Accordingly, the revised section has been limited to notification of discontinuance of required alarm monitoring services.

Final Action: AS AM AMPC____ D

F70-09/10

903.2.6 (IBC [F] 903.2.6)

Proposed Change as Submitted

Proponent: Roland J. Huggins, PE, American Fire Sprinkler Association, representing self

Revise as follows:

903.2.6 Group I. An *automatic sprinkler system* shall be provided throughout buildings with a Group I *fire area*.

Exception: An *automatic sprinkler system* installed in accordance with Section 903.3.1.2 or 903.3.1.3 shall be allowed in Group I-1 facilities provided that:

1. A hydraulic design information sign is located on the system riser
2. Exception 1 of Section 903.4 is not applied
3. Systems installed in accordance with Section 903.3.1.3 shall be maintained in accordance with the requirements of Section 903.3.1.2.

Reason: This exception provides a very cost efficient system but an institutional facility is still a commercial facility and warrants a higher level of assurance that the system will work. An NFPA 13D system does not require any identification for the design basis of the system so others working on the system after installation need this information. Granted, building plans are supposed to be maintained, but often aren't and a system riser sign is often the only guidance available. Section 903.4 requires the system to be monitored so in case of fire the fire department is automatically notified. Exception #1 excludes systems in one-and two-family dwellings. Since Section 903.3.1.3 explicitly links NFPA 13D systems and one- and two-family dwellings, it is interpreted that Exception #1 applies to all 13D systems. Clarification is needed. As a final item, if the intent of the ICC is that these facilities be maintained to ensure adequate operation, guidance must be provided. Simply referencing Section 903.5 will not work since it references IFC which references NFPA 25. NFPA 13D systems are outside the scope of NFPA 25. The only maintenance and testing performed on an NFPA 13D system is provided by the homeowner.

Cost Impact: The code change proposal will have minimal impact on the cost of construction.

ICCFILENAME: HUGGINS-F1-903.2.5.DOC

Public Hearing Results

Committee Action:

Approved as Submitted

Committee Reason: The committee felt that in order for a 13D system to be used in this application for Group I-1 occupancies that additional controls were necessary to increase the integrity of the system, therefore the proposal was approved as submitted.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Roland J. Huggins, American Fire Sprinkler Association, representing self, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

903.2.6 Group I. An automatic sprinkler system shall be provided throughout buildings with a Group I fire area.

Exceptions:

1. An automatic sprinkler system installed in accordance with Section 903.3.1.2 or ~~903.3.1.3~~ shall be allowed in Group I-1 facilities ~~provided that:~~
 - ~~1. A hydraulic design information sign is located on the system riser~~
 - ~~2. Exception 1 of Section 903.4 is not applied~~
 - ~~3. Systems installed in accordance with Section 903.3.1.3 shall be maintained in accordance with the requirements of Section 903.3.1.2.~~

2. An automatic sprinkler system installed in accordance with Section 903.3.1.3 shall be allowed in Group I-1 facilities when in compliance with all of the following:
 - 2.1. A hydraulic design information sign is located on the system riser
 - 2.2. Exception 1 of Section 903.4 is not applied, and
 - 2.3. Systems shall be maintained in accordance with the requirements of Section 903.3.1.2.

Commenter's Reason: This is just an editorial change to better comply with the standard format.

Final Action: AS AM AMPC____ D

F76-09/10

903.2.11.1.3 (IBC [F] 903.2.11.1.3)

Proposed Change as Submitted

Proponents: Tom Lariviere, Chairman, Joint Fire Service Review Committee; Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Revise as follows:

903.2.11.1.3 (IBC [F] 903.2.11.1.3) Basements. Where any portion of a *basement* is located more than 75 feet (22 860 mm) from openings required by Section 903.2.11.1, or where walls, partitions or other obstructions are installed that restrict the application of water from hose streams, the *basement* shall be equipped throughout with an *approved automatic sprinkler system*.

Reason: The purpose of the openings under Section 903.2.11.1 are for firefighting operations.

The firefighting purpose of these openings is to provide the ability to confine the fire in the basement from the exterior of the building. A basement fire can be especially dangerous to enter under fire conditions. Firefighters must be able to apply hose stream water from the exterior of the structure through these openings provided. This is particularly important in basements (below grade floors) since entry through a stairway would require firefighters to travel down into the heat and smoke that is trying to escape up and out the stairway.

When obstructions such as walls or partitions are installed in the basement, the ability to apply hose streams through these openings and reach the basement area is reduced or eliminated. The configuration and clear-opening requirements become useless when an interior wall or other obstruction is placed inside the basement. In that case, it is reasonable to require automatic fire sprinklers to provide adequate protection in the basement. This proposal requires that in the case of obstructions, the basement shall be provided with an approved automatic sprinkler system.

Cost Impact: The code change proposal will increase the cost of construction.

ICCFILENAME: LARIVIERE-F11-SHUMAN-F3-903.2.11.1.3.DOC

Public Hearing Results

Committee Action:

Approved as Submitted

Committee Reason: The committee felt that this proposal clarified the intent of the code with regard to obstructions in the basement causing challenges to fire fighting operations. It should be noted that there was some concern from committee members that the present code language already addresses this hazard and this language is unnecessary.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Marshall A. Klein, requests Disapproval.

Commenter's Reason: There was no fire data submitted with this code proposal to justify that the existing code language, or its existing enforcement, under the present wording in the Code has been a problem. Even the Committee's reason stated a concern from the "...committee members that the present code language already addresses this hazard and this language is unnecessary...", so why change the Code?

This section was originally from the UBC Section 3802(b)(1) that goes back to the 1976 edition of the UBC/UFC. The UBC/UFC did not consider hose stream an issue. The 1997 UBC Commentary stated:

"The provisions requiring openings in the exterior walls do not extend beyond the exterior wall line into the building. Thus, the code does not dictate specific openings for interior partition arrangements because the normal openings provided through interior partitions provide adequate accessibility to all interior portions of the building"

The IFC/IBC Commentary Handbooks further explains the application of this requirement very clearly as follows:

"Where obstructions such as walls or other partitions are present in any given story or basement, the walls and partitions enclosing any room or space must have openings that provide an equivalent degree of fire department access to that provided by the openings prescribed in Section 903.2.10.1 for exterior walls. If an equivalent degree of fire department access to all portions of the floor area is not provided, the story or basement would require an automatic sprinkler system."

The added language to the code text could cause many of the code complying small basements in existing buildings, to now become non-compliant if renovated because one could argue that an existing opening in an interior wall with any door or window arrangement would not necessarily "...restrict the application of water from hose streams...". Therefore, the adoption of this proposal will adversely affect previously approved code complying small basements during later interior remodels.

With no supporting documentation of fire problems in existing buildings to show a need that the existing code language is not adequate, the new wording for application of hose streams will only create added code interpretation issues for code compliance in small basements in buildings. This is a solution to a problem that does not exist with the present code text as was even stated in the Committee's "soft" approval recommendation. This code proposal should be disapproved.

Final Action: AS AM AMPC_____ D

F81-09/10

903.3.1.1.2 (New) [IBC [F] 903.3.1.1.2 (New)]

Proposed Change as Submitted

Proponent: Jeff Hugo, CBO, National Fire Sprinkler Association

Add new text as follows:

903.3.1.1.2 (IBC [F] 903.3.1.1.2) Sprinkler omissions Automatic sprinklers shall not be required to be installed in locations where NFPA 13 permits sprinklers to be omitted. The building shall still be considered equipped throughout.

Reason: The IBC requires that buildings using sprinklers for height/area increases and trade-offs (exceptions) to be sprinklered throughout. NFPA 13 also requires that the structure be sprinklered throughout (Section 8.1.1), unless specifically exempted by the standard. These areas that do not require sprinklers are commonly found in Chapter 8 of NFPA 13, and with these excepted areas, the building is still considered by the standard to be sprinklered throughout, which would comply with the requirements of the IBC.

One of the most common misinterpretations seen are canopies, exterior roofs and porte-cocheres being considered as a part of the main portion of the structure and therefore are being required to be sprinklered. The 2007 NFPA 13 clearly defines when sprinklers are required under the exterior roofs, canopies and porte-cocheres.

NFPA 13 (Section 8.15.7) is very specific on the sprinklering requirements in these appendages. All canopies, exterior roofs and porte-cocheres over 4' in width are required to be sprinklered unless:

- The canopy, roof, or porte-cochere is constructed with non-combustible, limited combustible, or fire retardant treated wood. (all fire retardant treated wood shall comply with NFPA 703)
- The underside (ceiling/eaves) of the canopy, roof, and porte-cochere of combustible construction provided the exposed finish material on the roof, canopy, or porte-cochere is non-combustible, limited combustible, or fire retardant treated wood, and the combustible concealed spaces (attic) is sprinklered, unless:
- The combustible concealed space is filled entirely with noncombustible insulation, or
- Ceilings that are noncombustible or limited combustible connected directly to joists with joist spaces not exceeding 160 cubic feet, or
- If concealed spaces do not exceed 55 square feet in area.

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

ICCFILENAME: HUGO-F3-903.3.1.1.2.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The committee disapproved this item as they felt that the language explaining what is considered as fully sprinklered appeared unnecessary for the code. The committee noted that such issues are better addressed within the standard and in the commentary for the IBC and IFC.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Joseph Holland and Dave Bueche representing Hoover Treated Wood Products, Inc, request Approval as Submitted.

Commenter's Reason: Committee decision rested on their belief this belonged in the commentary. We disagree. This is an important issue. Obviously, proponent has been questioned about the term "fully sprinklered". That term is could cause confusion. This proposal clarifies the intent of the code and the NFPA 13 standard.

Final Action: AS AM AMPC____ D

F83-09/10

903.3.5.2 (IBC [F] 903.3.5.2)

Proposed Change as Submitted

Proponent: Phillip A. Brown, American Fire Sprinkler Association

Revise as follows:

903.3.5.2 (IBC [F] 903.3.5.2) Secondary water supply. A An automatic secondary on-site water supply equal to the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for high-rise buildings in Seismic Design Category C, D, E or F as determined by the *International Building Code*. An additional fire pump is not required. The secondary water supply shall have a duration of not less than 30 minutes as determined by the occupancy hazard classification in accordance with NFPA 13.

Exception: Existing buildings.

Reason: A statement needs to be added to this section clarifying that the secondary water supply must be automatic and cannot be from a source that has to be manually activated. The Commentary clarification that an additional fire pump is not required should also be brought forward into this section.

Cost Impact: The code change proposal will increase the cost of construction.

ICCFILENAME: BROWNP-F1-903.3.5.2.DOC

Public Hearing Results

Committee Action:

Approved as Submitted

Committee Reason: The proposal was approved as the existing language could be interpreted as being a manual water supply when the intent is for an automatic water supply. This additional language will clarify the need for an automatic secondary water supply.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Lawrence G. Perry, AIA, representing Building Owners and Managers Association (BOMA) International, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

903.3.5.2 (IBC [F] 903.3.5.2) Secondary water supply. ~~An automatic~~ secondary on-site water supply equal to the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for high-rise buildings in Seismic Design Category C, D, E or F as determined by the *International Building Code*. An additional fire pump is not required. The secondary water supply shall have a duration of not less than 30 minutes as determined by the occupancy hazard classification in accordance with NFPA 13.

Exception: Existing buildings.

Commenter's Reason: This code change should be modified as proposed for the following reasons:

1. The intent of the change is not clear. It appears that perhaps the intent is that the sprinkler water supply would automatically switch to the secondary supply upon loss of the primary water supply, but that is not at all clearly stated.
2. It is not clear that this has always been the intent of the code, if it has been the standard practice for secondary water supplies, or if it is even a wise design choice.
3. In the event of a significant earthquake that causes a break in the main water supply, the primary water supply will be lost, and it is possible that the building system could at least partially drain. If the secondary water supply is 'automatically' tapped, it appears to be quite possible that the secondary supply would then be lost through the same break.
4. Secondary water supply sources historically have included swimming pools, on-site ponds, and gravity tanks in buildings. "Automatically" tapping that supply upon any interruption (regardless of the time frame of the interruption or the current conditions in the building) appears to open the door to all kinds of potential problems.
5. The second portion of the change, clarifying that a second fire pump is not required for a secondary water supply, is good clarification of the intent of the code.

Public Comment 2:

Rick Thornberry, PE, The Code Consortium Inc, representing self, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

903.3.5.2 (IBC [F] 903.3.5.2) Secondary water supply. An automatic secondary on-site water supply ~~equal to~~ having a capacity not less than the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for high-rise buildings in Seismic Design Category C, D, E or F as determined by the International Building Code. An additional fire pump ~~shall be not be~~ required for the secondary water supply unless needed to provide the minimum design intake pressure at the suction side of the fire pump supplying the automatic sprinkler system. The secondary water supply shall have a duration of not less than 30 minutes as determined by the occupancy hazard classification in accordance with NFPA 13.

Exception: Existing buildings.

Commenter's Reason: The purpose of this Public Comment is to further clarify the intent of the original code change proposal, as well as the current Section 903.3.5.2, requiring the on-site water storage for automatic sprinkler/standpipe systems in high-rise buildings in Seismic Design Categories C, D, E, and F. We certainly agree that the on-site water storage needs to be automatically available should the normal water supply to the fire protection system be interrupted for whatever reason. And we also agree that there should be no need to provide an additional fire pump with the automatic water supply since it is intended to directly supply the existing fire pump provided as required by code. However, there may be cases where the on-site water supply is located such that a pump is required in order for the necessary flow and pressure to be maintained to the suction side of the fire pump provided for the original design of the automatic sprinkler/standpipe system so that the fire pump can function properly in order to provide the required flows and pressures to adequately support the system. So the code text should be revised as indicated in this Public Comment to make it clear that, generally, an additional fire pump is not required but may be necessary for the automatic secondary on-site water supply to adequately supply the fire pump provided for the original system design.

Public Comment 3:

Dave Frable, representing U.S. General Services Administration, requests Disapproval.

Commenter's Reason: A water supply is a source of water (e.g., a tank, lake, reservoir, well, etc. or a connection to a municipal water distribution system). Though the means for delivering water from a secondary supply source to where it's needed can be (and maybe should be) automatic (e.g., a fire pump that starts upon loss of pressure), the water supply itself can not be automatic. Regardless of the intent, we believe the new text confuses the issue, more than it helps convey the proponent's intent. If there is a desire to require the means for delivering the water supply from the secondary source be automatic, code language needs to be stated differently. Therefore, it's critical that this comment be accepted so the code change proposal as written is rejected.

F87-09/10

904.1.1 (New) [IBC [F] 904.1.1 (New)]

Proposed Change as Submitted

Proponent: Tom Lariviere, Chairman, Joint Fire Service Review Committee

Add new text as follows:

904.1.1 (IBC [F] 904.1.1) Certification of service personnel for fire extinguishing equipment. Service personnel providing or conducting maintenance on automatic fire extinguishing systems, other than automatic sprinkler systems, shall possess a valid Certificate issued by an approved third party certification organization, an approved governmental agency, or other approved organization for the type of system and work performed.

Reason: This proposal will allow the code official to specify a minimum level of qualifications for servicing fire extinguishing systems. Ensuring technicians are qualified will enable communities to stay in compliance with the latest code regulations for fire extinguishing systems.

This proposal allows several options for the code official. The code official could choose to accept certification from a third party organization, a governmental agency, or any other organization. Formal certification for automatic fire extinguishing system technicians provides a mechanism for the technicians to demonstrate their knowledge of codes, standards, and related practices. The code official only needs to ascertain that the service technician has the proper certification.

Third party certification programs must meet a minimum acceptable standard that ensures a proper examination preparation. Certification programs provide a mechanism for fire code officials to use to evaluate individuals for the necessary knowledge. Certification programs from third party certification agencies should comply with Regulations and National Standards, such as:

- Uniform Guidelines on Employee Selection Procedures
- US Equal Employment Opportunity Commission (EEOC)
- Standards for Educational & Psychological Testing
- National Council on Measurement in Education (NCME)
- American Educational Research Association (AERA)
- American Psychological Association (APA)

Certification by governmental agency quite often is a certificate issued by a state agency. Similar to third party certifications, governmental certification must be specific to the type of work to be performed.

Certification by other organizations could consist of manufacturer training and certification programs. These certifications typically are only valid for the products from the specific manufacturer.

The code official has the option to determine which certification methods are acceptable, or even if multiple certifications are necessary. Requiring certified technicians helps protect public safety and promotes professionalism and expertise and helps ensure the competency of those individuals involved in the service industry.

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

ICCFILENAME: LARIVIERE-F12-904.1.1.DOC

Public Hearing Results

Committee Action:

Approved as Modified

Modify proposal as follows:

904.1.1 (IBC [F] 904.1.1) Certification of service personnel for fire extinguishing equipment. Service personnel providing or conducting maintenance on automatic fire extinguishing systems, other than automatic sprinkler systems, shall possess a valid Certificate issued by an ~~approved third party certification organization~~, an approved governmental agency, or other approved organization for the type of system and work performed.

Committee Reason: This proposal was approved as it was felt that certification programs are necessary and with this requirement such certification will be created. The modification simply removed the phrase "an approved third party certification organization" to provide more control to the jurisdiction.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Lawrence G. Perry, AIA, representing Building Owners and Managers Association (BOMA) International, requests Disapproval.

Committer's Reason: This proposal should be disapproved for the following reasons:

1. There are currently no widely-recognized certification programs in place to be utilized for this proposed certification requirement. The Code Development Committee notes that 'with this requirement, such certification will be created'. Without programs already in place, with criteria that has been vetted and accepted, it is premature to add such a code requirement.
2. Existing 'certifications' run the gamut from short written programs to extensive hands-on training.
3. The proposed text would open the door to allowing inadequate certification programs being accepted, while they might not provide adequate levels of training.

Final Action: AS AM AMPC____ D

F94-09/10

906.1 (IBC [F] 906.1)

Proposed Change as Submitted

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Revise as follows:

906.1 (IBC [F] 906.1) Where required. Portable fire extinguishers shall be installed in the following locations.

1. In new and existing Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies.

~~**Exception:** In new and existing Group A, B and E occupancies equipped throughout with quick response sprinklers, portable fire extinguishers shall be required only in locations specified in Items 2 through 6.~~

2. Within 30 feet (9144 mm) of commercial cooking equipment.
3. In areas where flammable or *combustible liquids* are stored, used or dispensed.
4. On each floor of structures under construction, except Group R-3 occupancies, in accordance with Section 1415.1.
5. Where required by the sections indicated in Table 906.1.
6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the *fire code official*.

Reason: Fire extinguishers have historically been the first line of defense for small, controllable fires. They are intended to be used for fires of limited size and easily controlled. If a fire is discovered in its early stages the most effective means of protecting life and preventing property loss is to sound an alarm and then to control and/or extinguish the incipient stage fire with a portable fire extinguisher. To simply wait for the fire to grow to size large enough for a sprinkler head to activate is contrary to lessons and guidance from the fire service and fire protection professionals. Since fire extinguishers provide a first line of defense vs. sprinklers, it remains unclear as to the justification for this exception. In that light, the Exception 1 to Section 906.1 should be deleted.

This exception was not in the original draft of the International Fire Code and it did not exist in any of the legacy fire codes. It currently does not exist in NFPA 1 Uniform Fire Code, NFPA 10 Standard for Portable Fire Extinguishers or NFPA 5000 Building Construction and Safety Code. It first appeared in the Final Draft of the 2000 editions of the IFC/IBC. Since the first publication of the International Fire Code, some fire service and fire protection professionals have expressed concern over the inclusion of an exception.

As a result a number of states have deleted the exception upon adoption of the IFC/IBC.

12 States plus Washington D.C. and New York City have Deleted Line 1 Exception.

2 States have amended Section 906.1 and the exception to require more extinguishers

2 States use both NFPA 1 and the IFC with more stringent code applicable.

17 additional States have adopted NFPA 1 as their fire code instead of the IFC.

A total of 33 State jurisdictions and an unknown number of local jurisdictions have chosen to delete the exception in favor of providing the ability to control a fire at its earliest stages.

There are other issues with this exception that have arisen since states have now been adopting the IFC and enforcing it within their state. Some examples are:

The exception is not being interpreted correctly and as a result is not being limited to occupancies with "QUICK RESPONSE" sprinklers installed. Instead, it is being applied in all cases where "REGULAR" sprinklers are installed. When an occupancy is being renovated and the sprinkler system is updated, presently installed extinguishers are being removed, lessening the level of protection available. Fire code officials do not all see hazard areas the same and as a result Section 906.1, Item 6 is not consistently applied jurisdiction to jurisdiction.

Some officials are exempting all extinguishers from being required thereby placing the occupants in danger at the time of a fire.

An added detriment is that if a building is occupied without fire extinguishers the ability of the building owner to properly and effectively place fire extinguishers is negatively impacted by the practical difficulty of installing fire extinguisher cabinets. Walls may not be thick enough for recessing the cabinets to keep the fire extinguishers from being obstructions to travel or from being hit and damaged themselves. If the walls and partitions can handle the recessed cabinets, design drawings and permits may be required to modify the walls and partitions.

This proposal will eliminate the exception and provide for the proper placement of an important firefighting tool.

Cost Impact: The code change proposal will cause a cost increase in new construction.

ICCFILENAME: DAVIDSON-SHUMAN-F8-906.1.DOC

Public Hearing Results

Committee Action:

Approved as Submitted

Committee Reason: The committee felt that even within sprinklered buildings fire extinguishers have made a difference in fighting fires therefore the exception for quick response sprinklers in Groups A, B and E occupancies was deleted. In addition people are used to seeing extinguishers within buildings and having them available for use.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Gene Boecker, Code Consultants Inc. representing the National Association of Theatre Owners, requests Disapproval.

Commenter's Reason: The proponent has not provided any indication of the number of jurisdictions that do not delete this exception, which can be assumed to be far greater than those that delete it. As a base code allowance, this has been in the codes for many years, and should not be deleted, since it is obviously adopted in many jurisdictions without problems.

Further, to address the following points from the original proponent:

- The exception is not being interpreted correctly and as a result is not being limited to occupancies with "QUICK RESPONSE" sprinklers installed. Instead, it is being applied in all cases where "REGULAR" sprinklers are installed.

Response: This is not a valid argument. If the exception is being misapplied to areas where "REGULAR" sprinklers are installed, changing the code is not a rational response. If the answer to each misapplied code exception is to delete it, then it follows that all exceptions should be removed from the code, since any exception could be misapplied. In fact, most of the code should be deleted if potential misapplication is a reason for deletion of text.

- When an occupancy is being renovated and the sprinkler system is updated, presently installed extinguishers are being removed, lessening the level of protection available.

Response: The protection is not being "lessened". It is being addressed appropriately, since the current code language clearly allows this exception for existing buildings, based on the equivalent protection provided by the quick response sprinklers.

- Fire code officials do not all see hazard areas the same and as a result Section 906.1, Item 6 is not consistently applied jurisdiction to jurisdiction.

Response: The code clearly states the exception. As stated above, if the answer to each misapplied code exception is to delete it, then it follows that all exceptions should be removed from the code.

- Some officials are exempting all extinguishers from being required thereby placing the occupants in danger at the time of a fire.

Response: As stated above, if the answer to each misapplied code exception is to delete it, then it follows that all exceptions should be removed from the code. If there is a question regarding application, ICC can be contacted and the Code commentary can be reviewed for help.

As a base allowance, this has been in the codes for many years, since it is obviously adopted in many jurisdictions without problems. Based on this alone, the current exception should be retained.

Public Comment 2:

Dave Frable representing the US General Service Administration, requests Disapproval.

Commenter's Reason: We are strongly opposed to deleting the exception that permits new and existing Group A, B, and E occupancies protected throughout by quick response sprinklers, the exemption for installing portable fire extinguishers in certain areas of a building. It should be noted that this exception has been in the International Fire Code since 2000. Please see the Fire Code Committee's reason statement and note that the basis for the Fire Code Committee approving this code change proposal was strictly based on how they "Felt" and not based on any technical justification of fire loss data provided by the proponent. We also strongly believe that evacuation of the building should be the first action of the occupants in the subject occupancies, not fighting the fire.

The exception acknowledges the reliable advantages of an automatic sprinkler system designed to comply with NFPA 13. Group A, B and E occupancies are considered light hazard occupancies in NFPA 13. Light hazard occupancies must be protected with quick-response sprinklers (see Section 903.3.2). The faster-acting sprinklers and lower fuel load associated with Group A, B and E occupancies counter the need for portable fire extinguishers. Our desire is to have occupants evacuate the building whenever possible rather than having them put themselves in harms way in trying to fight the fire with a portable fire extinguisher. It should be noted that portable fire extinguishers are still required to be installed in specific areas within these occupancies where the fire risk warrants.

As stated earlier, no technical substantiation or fire loss data that justifies the need to delete this exception has been provided. In addition, I totally disagree with the proponent's inference that this exception alone is the single primary reason why 19 States have not adopted the IFC. We also disagree with the proponent's statement that this exception is placing occupants in danger at the time of a fire. On the contrary, we feel eliminating this exception the risk of injury of occupants attempting to extinguish a fire will increase.

It should also be noted that the Occupational Safety and Health Administration (OSHA), 29 CFR 1910.157(g)(1) , also addresses portable fire extinguishers by specifically stating: "Where the employer has provided portable fire extinguishers **for employee use** in the workplace, the employer shall also provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting." Therefore, if portable fire extinguishers have been installed in a building and have been designated for occupant use and incorporated into the building's fire safety plan, training would be required. However, if this protocol for occupants using portable fire extinguishers is not incorporated in the building's fire safety plan, no training would be required. Hence, the occupants will not be properly trained to use the subject portable fire extinguishers as the proponent and Fire Code Committee has suggested. Also, we have been informed by several fire department personnel that they also do not utilize the subject building's portable fire extinguishers for suppression purposes based on reliability issues.

As everyone knows, fire is a rare event; however, should a fire occur in these occupancies, the probability that all occupants are knowledgeable and have been trained proficiently in the use of portable fire extinguishers to effectively extinguish a fire is low. We also believe the cost associated with the installation of portable fire extinguishers in these occupancies is unjustified, taking into consideration maintaining the subject fire extinguishers for the life of the building. We believe these costs savings would be better expended active fire detection and suppression system.

Lastly, it should be pointed out that all previous Fire Code Committees disapproved similar proposed code changes in the past by stating there has been no technical justification presented indicating that the current exception presents an increased hazard to safety. Evacuation of the building should be the first action of the occupants in the subject occupancies, not fighting the fire.

Public Comment 3:

Rob Geislinger representing the Fire Marshals Association of Colorado, requests Disapproval.

Commenter's Reason: The exception which would be deleted by F94 has been in the International Fire Code since 2000. While the proponents identified a number of entities which have amended this exception out, many more have not. In fact, many jurisdictions believe the exception has significant merit by providing an additional economic incentive to a building owner who might not otherwise install fire sprinklers.

The proponents also indicated that this provision did not exist in the legacy codes. This is true. However, the legacy Uniform Fire Code required fire extinguishers in far less locations than the IFC. That Code required extinguishers only in proximity to specific hazards (i.e. asphalt kettles, motor vehicle fuel dispensing facilities, and temporary membrane structures). That Code contained no general requirement for fire extinguishers in A, B, or E occupancies unless specifically mandated for specific hazards. The IFC as written is thus more restrictive than UFC.

The proponents also brought up other reasons for deleting the section:

- "The exception is not being interpreted correctly and as a result is not being limited to occupancies with "QUICK RESPONSE" sprinklers installed. Instead, it is being applied in all cases where "REGULAR" sprinklers are installed." **Answer: This is a training issue for fire code officials. The fact is that many sections of the Code may be misinterpreted or misapplied.**

- "When an occupancy is being renovated and the sprinkler system is updated, presently installed extinguishers are being removed, lessening the level of protection available." **Answer: The lower RTI and faster response of QR sprinklers have been demonstrated to protect people even in the room of origin. Standard response sprinklers generally do not activate in time to protect people intimate with a fire. Also, any building being renovated with a quick response automatic fire sprinkler system is obviously safer than it was when it only had manual firefighting devices.**

- "Fire code officials do not all see hazard areas the same and as a result Section 906.1, Item 6 is not consistently applied jurisdiction to jurisdiction." **Answer: The Code includes many provisions that are not consistently applied between jurisdictions. Rather than a laundry list of hazardous locations, the exception provides reasonable guidance to a fire code official based upon specific hazards within an occupancy and jurisdiction.**

- "Some officials are exempting all extinguishers from being required thereby placing the occupants in danger at the time of a fire." **Answer: This would also be a training issue. Fire extinguishers are a necessary safety component where superior automatic suppression systems do not exist.**

The proponents' last justification was that building owners later choosing to voluntarily add fire extinguishers would be at a disadvantage and could compromise necessary fire separations and exiting. In fact, by removing this exception, the proponents will be creating these problems throughout the country as now extinguishers will be required in "new and existing Group A, B, E..., occupancies". Also, while some building owners choose to spend their money to exceed the requirements of the Code, most do not. If they so choose, the exception doesn't prohibit them from doing so.

Despite the fact that this provision has been in the Code since its inception, the proponents did not identify any cases where individuals were injured or killed by the lack of fire extinguishers in buildings with quick response sprinklers. On the other hand, NFPA documents numerous cases where individuals are injured or killed in attempting to extinguish fires. It is counterproductive to place a device for property protection in a building where most occupants have not been trained, the likelihood of injury is high, and a building system itself will respond to mitigate the hazard. The

proponents' state: "To simply wait for the fire to grow to a size large enough for a sprinkler head to activate is contrary to lessons and guidance from the fire service and fire protection professionals." However, as fire professionals we should not be expecting untrained citizens to extinguish incipient fires. In fact, our message should be, "Get out!"

Public Comment 4:

Lawrence Perry representing the Building Owners and Managers Association, requests Disapproval.

Commenter's Reason: This code change should be disapproved for the following reasons.

1. The Committee reason states "the committee felt that even within sprinklered buildings, fire extinguishers have made a difference in fighting fires before the exception." What does that mean? The committee neither received nor presented any data showing lesser loss of life or lesser property damage in sprinklered buildings that also had portable fire extinguishers installed throughout.
2. The current code provides a safe workplace, and the proponents provide no evidence of an improvement in life safety by adding portable fire extinguishers; they would be hard pressed to do so, based on the excellent life-safety record of fully-sprinklered office buildings. The proponents want you to support the initial expenditure for large quantities of portable fire extinguishers, possibly large quantities of cabinets to store them, and possibly alarm/monitoring devices to prevent tampering. In addition, they either anticipate that businesses will suddenly choose to then voluntarily choose to opt for the OSHA 'fight-the-fire' approach (contrary to current widespread practice), absorb the costs for training some/most/all of the buildings occupants, and also foot the ongoing costs of maintaining both the equipment and the training program. At what additional benefit?
3. Perhaps the proponents will claim that there are no training costs to be incurred, since the proposal doesn't require occupants to be trained. If that is the case, and large numbers of businesses continue to instruct their employees, as permitted by OSHA, to simply flee the building in the event of any fire, what exactly is the point of this code change? Besides selling a bunch of expensive equipment that comes with an ongoing upkeep fee, there appears to be none.
4. The Committee and the proponents ignore the fact that in many of the affected buildings, there is either a lack of opportunity to train building occupants in the use of portable fire extinguishers, or a significant risk in assigning a fire suppression obligation to building occupants. OSHA regulations require that if employees are expected to perform fire suppression duties, that they be properly trained; however, OSHA also allows a workplace to have a policy that employees are to EVACUATE and not perform any suppression activities. The 'evacuate' approach is widely used in the modern workplace. In a multi-tenant office building, building management has no mechanism to train every employee of every tenant space.
5. The potential risk to property due to some minor water damage from sprinkler activation to control a small fire is a preferred, and an acceptable, risk to the option of either providing equipment that occupants will be instructed not to use, or providing the equipment and then needing to 'deputize' every building occupant as a fire fighter.
6. For both A and E occupancies, also affected by this change, training of building occupants in the proper use of extinguishers is even more impractical, if not impossible.

Final Action: AS AM AMPC_____ D

F95-09/10

906.1 (IBC [F] 906.1)

Proposed Change as Submitted

Proponent: Steven Orlowski, National Association of Home Builders

Revise as follows:

906.1 (IBC [F] 906.1) Where required. Portable fire extinguishers shall be installed in the following locations.

1. In new and existing Group A, B, E, F, H, I, M, R-1, R-2, R-4, and S Occupancies.

Exception: In new and existing Group A, B, ~~and E~~ and R-2 occupancies equipped with quick response sprinklers, portable fire extinguishers shall be required only in locations specified in Items 2 through 6.

2. Within 30 feet (9144 mm) of commercial cooking equipment.
3. In areas where flammable or *combustible liquids* are stored, used, or dispensed.
4. On each floor of structures under construction, except R-3 occupancies, in accordance with Section 1415.1.
5. Where required by the sections indicated in Table 906.1.
6. Special-hazard areas, including but not limited to, laboratories, computer rooms and generator rooms where required by the *fire code official*.

Reason: Both the International Building Code and the International Fire Code specifically require that all new R occupancies, which are considered light hazard according to NFPA 13, are equipped with quick-response or residential type automatic sprinklers. In addition, NFPA 13 permits some R occupancies to install an automatic suppression system in accordance to NFPA 13 R, when the structure does not exceed 4 stories in height. The purpose for requiring the quick response heads in group A, B, E and R-2 occupancies is to lower the operating temperature for the suppression system to react during the incipient stage of a fire emergency. This provides additional time for the occupants to evacuate the structure and achieve the overall desire for the occupant to evacuate the structure rather than fight the fire and put themselves at unnecessary risk.

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

ICCFILENAME: ORLOWSKI-F1-906.1.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The proposal was disapproved to be consistent with the action on code change F94-09/10 that deleted the exception for quick response sprinklers. In addition, it was felt that there have been many situations in Group R-2 dormitories where extinguishers have been necessary.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Jeffrey Shapiro, International Code Consultants, representing National Multi Housing Council, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

906.1 Where required. Portable fire extinguishers shall be installed in the following locations.

1. In new and existing Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies.

Exceptions:

1. In new and existing Group A, B and E ~~and R-2~~ occupancies equipped throughout with quick-response sprinklers, portable fire extinguishers shall be required only in locations specified in Items 2 through 6.
2. In R-2 occupancies, portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each dwelling unit is provided with a portable fire extinguisher having a minimum rating of 1-A:10-B:C.
2. Within 30 feet (9144 mm) of commercial cooking equipment.
3. In areas where flammable or combustible liquids are stored, used or dispensed.
4. On each floor of structures under construction, except Group R-3 occupancies, in accordance with Section 1415.1.
5. Where required by the sections indicated in Table 906.1.
6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the fire code official.

Commenter's Reason: Existing IFC Table 906.3(1) would require fire extinguishers in an R-2 occupancy (considered a Light Hazard Occupancy for fire extinguisher design) to be a minimum of 2A rated (maximum floor area per unit of A is 3000 sq. ft) and no more than 75' to reach the fire extinguisher. Some jurisdictions measure the travel distance to a fire extinguisher from within the dwelling unit to the fire extinguisher placed in the common corridor of the building, and others from the dwelling unit's entrance door to the fire extinguisher placed in the common corridor of the building. Either way the fire extinguishers are placed in the common corridor that would require the occupant to leave the dwelling unit to get the fire extinguisher to use.

Based on NFPA Fire Reports for fires in apartment buildings (2003-2007 Annual Averages), out of the 38,000 fires/year in apartment buildings, 60% of the fires originate within the dwelling unit, and only about 14% in the common areas of the building that would not be covered by Item #3 or #6 in current Section 906.1. The largest numbers of fires in apartment buildings originate in the kitchen, bedrooms, and living rooms so it makes more sense to locate the fire extinguisher closer to the areas within the dwelling unit where the great majority of the fires occur than outside the dwelling unit. Even if a fire is outside the dwelling unit, it seems more likely that the occupant will be able to get to, and use, the fire extinguisher located in his/her dwelling unit, than finding the fire extinguisher in the common corridor.

In addition, there has always been a problem with vandalism and pilfering of fire extinguishers in common corridors of apartment buildings, as well as issues involving the size and weight of such fire extinguishers if an elderly apartment resident were to attempt using one.

This proposed public comment would permit the placement of a fire extinguisher within each dwelling unit to provide rapid access and use by the dwelling unit occupants to an incipient fire in the dwelling unit where a fire would more likely occur. The size and rating of the fire extinguisher would be appropriate for the residential environment. The size of a dwelling unit is typically well under the 3000 sq. ft. rating for a 1A rated fire extinguisher (most dwelling units are in the 750-1000 sq. ft. range) so there is a large safety factor for justifying the minimum 1A-10B:C rating.

Finally, it makes more sense to put extinguishers in dwelling units, as opposed to common areas, because we don't want occupants re-entering a unit that is on fire after they've already left. It's preferable to provide an extinguisher for ready access in the unit, versus encouraging someone to leave the unit to get an extinguisher and then return to fight a fire.

Final Action: AS AM AMPC _____ D

F96-09/10

906.3 (New) [IBC [F] 906.3 (New)]

Proposed Change as Submitted

Proponent: Tom Lariviere, Chairman, Joint Fire Service Review Committee

Add new text as follows:

906.3 (IBC [F] 906.3) Certification of service personnel. Service personnel providing or conducting maintenance shall possess a valid Certificate issued by an *approved* third party certification organization, an *approved* governmental agency, or other *approved* organizations for the type of work performed.

(Renumber subsequent sections)

Reason: This proposal will allow the code official to specify a minimum level of qualifications for servicing portable fire extinguishers. Ensuring technicians are qualified will enable communities to stay in compliance with the latest code regulations for portable fire extinguishers.

This proposal allows several options for the code official. The code official could choose to accept certification from a third party organization, a governmental agency, or any other organization. Formal certification for portable fire extinguisher technicians provides a mechanism for the technicians to demonstrate their knowledge of codes, standards, and related practices. The code official only needs to ascertain that the service technician has the proper certification.

Third party certification programs must meet a minimum acceptable standard that ensures a proper examination preparation. Certification programs provide a mechanism for fire code officials to use to evaluate individuals for the necessary knowledge. Certification programs from third party certification agencies should comply with Regulations and National Standards, such as:

- Uniform Guidelines on Employee Selection Procedures
- US Equal Employment Opportunity Commission (EEOC)
- Standards for Educational & Psychological Testing
- National Council on Measurement in Education (NCME)
- American Educational Research Association (AERA)
- American Psychological Association (APA)

Certification by governmental agency quite often is a certificate issued by a state agency. Similar to third party certifications, governmental certification must be specific to the type of work to be performed.

Certification by other organizations could consist of manufacturer training and certification programs. These certifications typically are only valid for the products from the specific manufacturer.

The code official has the option to determine which certification methods are acceptable, or even if multiple certifications are necessary. Requiring certified technicians helps protect public safety and promotes professionalism and expertise and helps ensure the competency of those individuals involved in the service industry.

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

ICCFILENAME: LARIVIERE-F15-906.3.DOC

Public Hearing Results

Committee Action:

Approved as Modified

Modify the proposal as follows:

906.3 (IBC [F] 906.3) Certification of service personnel. Service personnel providing or conducting maintenance shall possess a valid Certificate issued by an ~~approved third party certification organization~~, an *approved* governmental agency, or other *approved* organizations for the type of work performed.

Committee Reason: The committee approved this proposal to be consistent with the action taken on code change F87-09/10. In addition, it will provide more leeway for the jurisdiction to ask for a certain level of qualifications. The modification was the same as that made for code change F87-09/10 which deleted the phrase ""an approved third party certification organization" to provide more control to the jurisdiction.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Lawrence G. Perry, AIA, representing Building Owners and Managers Association (BOMA) International, requests Disapproval.

Commenter's Reason: This proposal should be disapproved for the following reasons:

1. There are currently no widely-recognized certification programs in place to be utilized for this proposed certification requirement. The Code Development Committee, in their approval of similar item F87-09/10, notes that 'with this requirement, such certification will be created'. Without programs already in place, with criteria that has been vetted and accepted, it is premature to add such a code requirement.
2. Existing 'certifications' run the gamut from short written programs to extensive hands-on training. The proposed text would open the door to allowing inadequate certification programs being accepted, while they might not provide adequate levels of training.
3. For this item, part of the Committee reason for approval was that "it will provide more leeway for the jurisdiction to ask for a certain level of qualifications". This works both ways: while some jurisdictions may develop a very high 'certification' requirement, "certified" to an inappropriate standard will lead to nothing more than an appearance of appropriately trained personnel.

Final Action: AS AM AMPC _____ D

F102-09/10

907.2.1.1 (IBC [F] 907.2.1.1)

Proposed Change as Submitted

Proponent: Gene Boecker, Code Consultants, Inc., representing self

Revise as follows:

907.2.1.1 (IBC [F] 907.2.1.1) System initiation in Group A occupancies with an occupant load of 1,000 or more.
Activation of the fire alarm in Group A occupancies ~~with an~~ where the occupant load of due to the assembly occupancy is 1,000 or more shall initiate a signal using an emergency voice/alarm communications system in accordance with Section 907.6.2.2. Group A occupancies not separated from one another in accordance with Section 707.3.9 of the International Building Code shall be considered as a single occupancy for the purposes of applying this section.

Exception: Where *approved*, the prerecorded announcement is allowed to be manually deactivated for a period of time, not to exceed 3 minutes, for the sole purpose of allowing a live voice announcement from an *approved*, constantly attended location.

Reason: Section 508 of the IBC already addresses the extent of application for conditions where there are differing occupancy groups. The revised language recognizes that and makes reference back to that section of the code. There has been a question about how to apply the 1,000 occupants. If the 1,000 occupants are all in a single room, it is clear. However, it is not clear how the people in different parts of the building are combined to reach the threshold of 1,000.

For example: There are 250 assembly occupants in a small restaurant at one end of a hotel and sports bar with an occupant load of 120 in a separate location. At the other end of the hotel is a conference center with an occupant load of 700. It is not clear from the code whether those people should be added together or not; and, if not, under what conditions. The code will now be clear that the areas must be separated using the mixed occupancy provisions if there are other occupancies between them or by a fire barrier if the areas adjoin one another.

The exception is unaffected by the proposal.

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

ICCFILENAME: BOECKER-F2-907.2.1.1.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The committee disapproved the proposal with concern that this approach, which was used in code change F100-09/10, is not considered appropriate due to the large occupant loads addressed by this section.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Gene Boecker, Code Consultants Inc, representing The National Association of Theatre Owners, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

907.2.1.1 (IBC [F] 907.2.1.1) System initiation in Group A occupancies with an occupant load of 1,000 or more.

Activation of the fire alarm in Group A occupancies where the occupant load due to the assembly occupancy is 1,000 or more shall initiate a signal using an emergency voice/alarm communications system in accordance with Section 907.6.2.2. ~~Group A occupancies not separated from one another in accordance with Section 707.3.9 of the International Building Code shall be considered as a single occupancy for the purposes of applying this section.~~

Exceptions :

1. Group A occupancies that do not share any portion of the same exit access system shall not be required to be considered as a single occupancy for the purposes of applying this section.
2. Where *approved*, the prerecorded announcement is allowed to be manually deactivated for a period of time, not to exceed 3 minutes, for the sole purpose of allowing a live voice announcement from an *approved*, constantly attended location.

Commenter's Reason: The committee felt that the missing concept in this proposal was the issue of assembly occupancies that share the exit access portions of the means of egress. Where such occupancies share exit access, and the aggregate occupant loads of such occupancies exceed 1,000, the committee felt that the requirements for voice alarm should be applied. However, should such occupancies use separate exit access components, the committee felt that each occupancy would be permitted to be evaluated separately. This proposal addresses these concerns and comments.

Final Action: AS AM AMPC____ D

F106-09/10

907.2.2.1 (IBC [F] 907.2.2.1)

Proposed Change as Submitted

Proponent: Rick Sheets, Fire Committee Chair, Brinks Home Security, representing National Burglar and Fire Alarm Association

Revise as follows:

907.2.2.1 (IBC [F]907.2.2.1) Group B ambulatory health care facilities. *Fire areas* containing Group B ambulatory health care facilities shall be provided with an electronically supervised automatic smoke detection system installed within the ambulatory health care facility and in public use areas outside of tenant spaces, including public *corridors* and elevator lobbies.

~~**Exception:** Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 provided the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.~~

Reason: Delete Exception.

Another new occupancy has been defined under the "B" Business category, called "Ambulatory Health Care Facilities". (304.1) These facilities are defined as buildings or portions of buildings providing medical, surgical, psychiatric or nursing care less than 24 hours a day to persons incapable of self-preservation (i.e. 'put under' for minor surgery etc.). These occupancies, covered in 907.2.2.1, need an automatic smoke detection system installed in the Ambulatory Health Care Facility plus in their public use areas, corridors and elevator lobbies including all the public areas on other floors outside the AHCF area,except if the building is sprinkled and its activation causes the (required) occupant notification appliances to activate.

The problem with allowing this exception is that by code, heat detectors (which is what a sprinkler head is) are not, and never have been, permitted to replace smoke detectors for protection of life. Heat detectors are not life-safety devices in any code or standard because they do not provide the early warning needed for the safe evacuation of occupants. Sprinklers have a great reputation for saving lives only when used along with early detection provided by smoke detectors.

Cost Impact: The code change proposal will increase the cost of construction \$.30 per square foot.

ICCFILENAME: SHEETS-F1-907.2.2.1.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The proposal which would have removed the exception allowing sprinklers in lieu of smoke detection was disapproved as it would take away the incentive for sprinklers. In addition since the section is so new it should first have a chance to be applied before being revised.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Rick Sheets representing National Burglar and Fire Alarm Association, requests Approval as Submitted.

Commenter's Reason: The committee action was to disapprove F106 because it was felt that removing the exception took away the sprinkler incentive. The proposal did not ask to remove the sprinklers, just to provide smoke detectors in addition to the sprinklers. Smoke detectors provide much earlier warning of a fire emergency than sprinklers. While sprinklers will certainly reduce the fire growth, since many occupants of the AHCF occupancy may need assistance in evacuating if necessary, staff should be given the maximum amount of warning. Life safety can be greatly improved by providing both smoke detection and fire sprinklers.

A number of studies validate this, such as:

"Measurement of Room Conditions and Response of Sprinklers and Smoke Detectors During a Simulated Two-Bed Hospital Patient Room Fire", Notarianni, Kathy A., 1993, NISTIR 5240, Gaithersburg, MD: National Institute of Standards and Technology, July.

Notarianni noted:

"Sprinklers in all locations tested actuated before the patient's life would be threatened by this nominally 65 kW fire for the closed door, closed door privacy curtain, and open door privacy curtain tests. However, in the shielded fire test, the sprinklers at locations S6 and S1, the standard sidewall across from the foot of patient bed #2, and the EC sidewall, on the east wall near the bathroom, respectively, activated after the life safety criterion in HAZARD I with regard to temperature was exceeded. Ionization and photoelectric detectors in all locations alarmed before the patient's life would be threatened."

Structure Fires in Residential Board and Care, Jennifer Flynn, NFPA Fire Analysis and Research, Quincy, MA, December 2009

U.S. Fire departments responded to an estimated average of 2,070 structure fires in residential board and care facilities annually during 2003-2007.

These fires caused annual averages of:

- 10 civilian deaths
- 70 civilian injuries
- \$10.9 million in direct property damage

Smoking materials caused 3% of fires but 63% of the civilian deaths.

- Fires that started on mattress or bedding material caused 44% of the civilian deaths in these properties.
- Structure fires in these properties peak between 4 and 7 p.m.
- Saturday was the peak day for fires in these properties.

Public Comment 2:

Thomas Hammerberg representing Automatic Fire Alarm Association, requests Approval as Submitted.

Commenter's Reason: The committee action was to disapprove F106 because it was felt that removing the exception took away the sprinkler incentive. The proposal did not ask to remove the sprinklers, just to provide smoke detectors in addition to the sprinklers. Smoke detectors provide much earlier warning of a fire emergency than sprinklers. While sprinklers will certainly reduce the fire growth, since many occupants of the AHCF occupancy may need assistance in evacuating if necessary, staff should be given the maximum amount of warning. Life safety for fire fighters and occupants can be greatly improved by providing both smoke detection and fire sprinklers.

A number of studies validate this, such as:

"Measurement of Room Conditions and Response of Sprinklers and Smoke Detectors During a Simulated Two-Bed Hospital Patient Room Fire", Notarianni, Kathy A., 1993, NISTIR 5240, Gaithersburg, MD: National Institute of Standards and Technology, July.

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activated after the life safety criterion in HAZARD I with regard to temperature was exceeded. Ionization and photoelectric detectors in all locations alarmed before the patient's life would be threatened."

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- 10 civilian deaths
- 70 civilian injuries
- \$10.9 million in direct property damage

Smoking materials caused 3% of fires but 63% of the civilian deaths.

- Fires that started on mattress or bedding material caused 44% of the civilian deaths in these properties.
- Structure fires in these properties peak between 4 and 7 p.m.
- Saturday was the peak day for fires in these properties.

Final Action: AS AM AMPC_____ D

F107-09/10

907.2.3 (IBC [F] 907.2.3)

Proposed Change as Submitted

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Revise as follows:

907.2.3 (IBC [F] 907.2.3) Group E. A manual fire alarm system that ~~activates~~ initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.6.2.2 and installed in accordance with Section 907.6 shall be installed in Group E occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

Exceptions:

1. A manual fire alarm system is not required in Group E occupancies with an occupant load of ~~less than 50~~ 30 or less.
2. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:
 - 2.1. Interior corridors are protected by smoke detectors.
 - 2.2. Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.
 - 2.3. Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.
 - ~~2.4. The capability to activate the evacuation signal from a central point is provided.~~
 - ~~2.5. In buildings where normally occupied spaces are provided with a two-way communication system between such spaces and a constantly attended receiving station from where a general evacuation alarm can be sounded, except in locations specifically designated by the fire code official.~~
3. Manual fire alarm boxes shall not be required in Group E occupancies where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, the notification appliances emergency voice/alarm communication system will activate on sprinkler waterflow and manual activation is provided from a normally occupied location.

Reason: Group E occupancies mix a high concentration of children with fuel loads on a daily basis. As budgets shrink, so do the number of adult supervisors. Our children are in schools because they are required to be there. We owe them a duty to ensure they are safe from the risk of fire while in school. We simply cannot wait for a catastrophe to protect children while at school.

Unfortunately the world of elementary, secondary and higher education learning has gone through tremendous changes in security measures undertaken, both operationally and hardware installations, due to the threat of violent acts committed against students and staff. Where we had educational facilities with highly effective fire drill evacuation procedures and actions during system activation, we now have written plans and training in place to ignore the activation of the fire alarm system if a "lockdown" has been declared because the activation of the fire alarm system may be a diversion to bring staff and students out into the open to serve as victims.

This is not a possible situation. This is a very real situation that occurs throughout the country in response to the acts of violence that have occurred at educational facilities. Though the exact procedure may vary site to site, the main premise of a "lockdown" is to gather staff and students into classrooms and offices and to lock the doors, preventing intruders from getting into the room and preventing staff and students from leaving the rooms until an all clear is announced. The staff and students are trained to ignore a fire alarm activation during a lockdown until they are ordered to evacuate after someone in authority, (could be a Principal or could be a Police Commander), makes a determination that the fire threat is real and that they must evacuate to survive the fire.

Once the students and staff ignore the fire alarm, there needs to be a reliable method of communicating the message that now is the time to evacuate. PA systems that do not meet appropriate standards of care for installation or maintenance related to reliability at the time of a fire

emergency do not satisfy that need. To address this issue this proposal would require the installation of a emergency voice/alarm communications system installed in accordance with the code and referenced standards. Recognizing that there is a related increase in the cost of construction Section 907.5.2.2 allows that system to be used for other announcements to eliminate the need for a public address system for that purpose. Section 907.2.3, Exception one has been modified to correlate the occupant load triggers, Items 2.4 and 2.5 would be redundant since the emergency voice/alarm communications system would meet those two requirements and Exception 3 was modified to correlate with the new language in 907.2.3.

Cost Impact: The code change proposal will increase the cost of construction.

ICCFILENAME: DAVIDSON-SHUMAN-F2-907.2.3.DOC

Public Hearing Results

Committee Action:

Approved as Submitted

Committee Reason: The committee felt that this proposal was necessary as schools are dealing with a host of threats such as fires and tornados and in more recent history an increase in school lockdown situations. This provides a better method of communication during emergencies than traditional fire alarm and occupant notification systems

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Lawrence G. Perry, AIA, representing Building Owners and Managers Association (BOMA) International, requests Disapproval.

Commenter's Reason: This code change proposal, which would require emergency voice alarm systems in any Group E occupancy with more than 30 occupants, should be disapproved for the following reasons:

1. This is an onerous requirement for small schools, with no sensible rationale. A school of 30 or so students could be as small as 1000 square feet or so. What is the point of an emergency voice alarm system in such a small building? Are you going to have one zone at the fingerprint station and a separate one at the snack table?
2. In larger schools, a two-way communication system is typically installed between each classroom and a central control point (typically the main office), so that administrative staff can communicate with teachers (and vice versa), summon students, make and announcements on a classroom or school-wide basis. Current code recognizes this system, allowing the deletion of manual pull stations in spaces served by such a system. This code change deletes the exception, and removes any incentive for providing these two-way communication systems. What is the increase in protection provided by replacing a two-way system with a one-way system?
3. This change adds a significant cost to all affected Group E buildings. In the current economic climate, with jurisdictions faced with significant budget shortfalls, code changes that add to the cost of new (or renovated) school buildings will simply lead to less new construction and less modernization of existing buildings. This change has not been shown to offer any significant increase to life safety in Group E occupancies, and should therefore, not be a financial burden passed on to local communities.
4. One of the primary reasons given in support of this change was that in some cases, schools have put in place policies that instruct staff and students not to immediately evacuate upon activation of the fire alarm signal. First, a decision by some unclear number of facilities should not become the basis of a major change to all future construction. Second, this concern has been more appropriately been addressed by changes that were processed last cycle, and are already contained in Section 404.3.3 of the IFC. Any facility wishing to put in place any sort of 'lockdown plan' is required to receive approval of the fire department. This package of provisions includes a requirement that any lockdown plan include a means of 'two-way communication' between each secured area and a central control point. With this provision in the code already, what is the purpose of adding an expensive 'one-way' communication system to the same buildings?

Final Action: AS AM AMPC____ D

F109-09/10

907.2.9 (IBC [F] 907.2.9), 907.2.9.3 (New) [IBC [F] 907.2.9.3 (New)]

Proposed Change as Submitted

Proponent: William Freer, Fire Protection Specialist, NYS Office of Fire Prevention and Control

1. Revise as follows:

907.2.9 (IBC [F] 907.2.9) Group R-2. Fire alarm systems and smoke alarms shall be installed in Group R-2 occupancies as required in Section 907.2.9.1 and ~~907.2.9.2~~ through 907.2.9.3.

907.2.9.3 (IF) 907.2.9.3) Group R-2 college and university buildings. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group R-2 college and university buildings in the following locations:

1. Common spaces outside of dwelling units and sleeping units
2. Laundry rooms, mechanical equipment rooms, and storage rooms
3. All interior corridors serving sleeping units or dwelling units.

Required smoke alarms in dwelling units and sleeping units in Group R-2 college and university buildings shall be interconnected with the fire alarm system in accordance with NFPA 72.

Exception: An automatic smoke detection system is not required in buildings that do not have interior corridors serving sleeping units or dwelling units and where each sleeping unit or dwelling unit either have a means of egress door opening directly to an exterior exit access that leads directly to an exit or a means of egress door opening directly to an exit.

Reason: This code change would add new requirements to the code. The current code only requires single and multiple station smoke alarms in new R-2 student housing. Single and multiple station smoke alarms are not required to be connected to a building fire alarm which would evacuate the building in event of a fire or smoke condition. They are also not required to be in all areas of the building which have been shown to be frequent areas of ignition. In a study completed by the New York State Governor’s Task Force on Campus Fire Safety it was cited that 43% of fires in college dormitories are located in dorm rooms or kitchens, leaving the other 57% to be located in areas that would not require smoke detection under the current code. The study also showed that there were approximately 300 fires on college campus over a 3 year period while only 160 and were reported to the Fire Department. The Center for Campus Fire Safety reports 99 deaths have been “reported” in fires in student housing since 2000. An NFPA study on student housing showed 3,300 structural fires in Dormitories, Fraternities, Sororities and Barracks between 2002-2005. Since 1980 there has been an increase of 3% in reported fires in dormitory type occupancies, while there has been a 52% decrease in overall reported structural fires. New York State has required Fire Alarm and detection system in new dormitories since 2003 and has not had any deaths reported in these buildings since that change.

Cost Impact: The code change proposal will increase the cost of construction.

ICCFILENAME: FREER-F2-907.2.9.DOC

Public Hearing Results

Committee Action:

Approved as Submitted

Committee Reason: The committee approved the proposal due to the unique hazards that are present in Group R-2 college and university buildings. More specifically, there are often more common areas than found in other types of Group R-2 occupancies where occupants congregate. Also it is not uncommon to have activities such as cooking in these common areas.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Jeffrey Shapiro, International Code Consultants, representing National Multi Housing Council, requests Disapproval.

Commenter’s Reason: The justification for approving this proposal failed to consider the inclusion of residential fire sprinkler systems in cited fire statistics, and it failed to look at whether the existing requirement for manual fire alarm systems adequately addresses the need for a supplemental evacuation warning.

Of greater concern however, is the lack of consideration for the increased number of alarms that will be associated with placing smoke detectors in common areas and dorm rooms that will ultimately lead students to ignore the alarm system. Consider that small dorm rooms with cooking equipment (microwaving popcorn being one example) will take very little time to fill with enough smoke to activate the alarm system.

Finally, there is a concern with respect to defining exactly what constitutes “college and university buildings.” Are these only buildings that are owned by the school, or do they include off-campus housing. If off-campus housing is included, at what point does the tenant population’s student percentage cause the building to differ from any other apartment building? Granted, the code already uses this text in Chapter 4 for emergency planning, but that is a far less ominous requirement to leave vague than what is proposed here.

With all of these concerns and the lack of a comprehensive basis of justification, the proposal should be rejected.

Final Action: AS AM AMPC____ D

F110-09/10

907.2.9.2 (New) [IBC [F] 907.2.9.2 (New)]

Proposed Change as Submitted

Proponent: Ken Kraus, Los Angeles Fire Department

Add new text as follows:

907.2.9.2 (IBC [F] 907.2.9.2) Automatic smoke detection system. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.6 shall be installed through out all interior corridors serving 10 or more dwelling units.

Exception: An automatic smoke detection system is not required in buildings that do not have interior *corridors* serving *dwelling units* and where each *dwelling unit* has a *means of egress* door opening directly to an *exit* or to an exterior *exit access* that leads directly to an *exit*.

Reason: Automatic fire alarm systems are currently required, with exception, within interior corridors in R-1 Occupancies, e.g., Hotels and Motels. While Apartment buildings represent, in some respects, hazards similar to those found in R-1 Occupancies, they represent distinct and extenuating conditions that warrant similar protectives. Specifically:

Non transient occupants in R-2 Occupancies utilize cooking appliances to a much greater extent than R-1 Occupants.

R-2 occupants disable smoke alarms since low voltage and false alarms represent a continual nuisance.

R-2 occupants are much more likely to prop open required fire protection assemblies (for ventilation) than occupants in hotels and motels.

Cost Impact: The code change proposal will increase the cost of construction.

ICCFILENAME: KRAUS-F1-907.2.9.2.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: This proposal to add an automatic smoke detection system to Group R-2 occupancies was disapproved as it appeared to be too restrictive. In addition, these requirements would be applicable more often than the manual fire alarm requirements. Group R-1 occupancies require both manual and automatic fire alarm systems but the occupants found in such occupancies are generally more unfamiliar with the building and necessitate this higher level of protection.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Thomas P. Hammerberg, Automatic Fire Alarm Association Inc, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

907.2.9.2 (IBC [F] 907.2.9.2) Automatic smoke detection system. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.6 shall be installed throughout all interior corridors serving ~~49~~ 16 or more dwelling units.

Exception: An automatic smoke detection system is not required in buildings that do not have interior *corridors* serving *dwelling units* and where each *dwelling unit* has a *means of egress* door opening directly to an *exit* or to an exterior *exit access* that leads directly to an *exit*.

Commenter's Reason: One of the reasons the committee action was to disapprove F110 was because it would have been more restrictive than the manual fire alarm box requirements. Changing the number of dwelling units from 10 to 16 corrects that. Smoke detectors provide early warning of a fire emergency. Apartments with interior corridors are not that much different than hotels with interior corridors. The IFC requires smoke detectors in corridors of hotels regardless of whether or not the building is sprinklered. It is a known fact that sleeping occupants need more time to react to an alarm, regardless of whether they are sleeping in an apartment or a hotel. Due to the slower response to a fire emergency by occupants who are sleeping, the earliest possible warning must be provided to save more lives. Other factors to consider include the fact that escape time has decreased from approximately 17 minutes to 3 minutes in residential applications and recent studies showing difficulty in awakening the elderly and young children. The more time we allow for reaction, the safer it will be.

There are numerous studies on human behavior during fires. A couple of examples are:

“Evacuation Time and Movement in Apartment Buildings”, Guylene Proulx, Fire Safety Journal, 1995.

“Awakening of Sleeping People – a Decade of Research”, Ian Thomas & Dorothy Bruck, Fire Technology, 2008.

Public Comment 2:

Thomas P. Hammerberg, Automatic Fire Alarm Association Inc, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

907.2.9.2 (IBC [F] 907.2.9.2) Automatic smoke detection system. In addition to smoke alarms required by Section 907.2.11.2, an automatic smoke detection system that activates the occupant notification system in accordance with Section 907.6 shall be installed throughout all interior corridors serving 10 or more dwelling units.

Exception: An automatic smoke detection system is not required in buildings that do not have interior *corridors* serving *dwelling units* and where each *dwelling unit* has a *means of egress* door opening directly to an *exit* or to an exterior *exit access* that leads directly to an *exit*.

Commenter’s Reason: The additional language to the beginning of this proposed section was added to ensure there were no interpretation issues. More specifically, the language is intended to clarify that the smoke detection system in the corridors was in addition to smoke alarms in the rooms, not a replacement for them.

Final Action: AS AM AMPC_____ D

F111-09/10

907.2.10.2 (IBC [F] 907.2.10.2)

Proposed Change as Submitted

Proponent: Rick Sheets, Fire Committee Chair, Brinks Home Security, representing National Burglar and Fire Alarm Association

Revise as follows:

907.2.10.2 (IBC [F] 907.2.10.2) Automatic smoke detection system. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.6 shall be installed in corridors, waiting areas open to corridors and habitable spaces other than sleeping units and kitchens.

Exceptions:

- ~~1. Smoke detection in habitable spaces is not required where the facility is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.~~
2. An automatic smoke detection system is not required in buildings that do not have interior corridors serving sleeping units and where each sleeping unit has a means of egress door opening directly to an exit or to an exterior exit access that leads directly to an exit.

Reason: Exception #1 should be deleted.

Background: A new R-4 occupancy has been defined under the “B” Business category, called “Ambulatory Health Care Facilities”. (AHCF, 304.1) These facilities provide medical, surgical, psychiatric or nursing care less than 24 hours a day to persons incapable of self-preservation (i.e. ‘put under’ for minor surgery etc.). These occupancies, covered in 907.2.2.1, need an automatic smoke detection system installed in the Ambulatory Health Care Facility area, plus in their public use areas, corridors and elevator lobbies for all the public areas located outside the AHCF area. While we see the need for a new occupancy type, we cannot see where sprinklers are permitted to replace required smoke detection.

Problem:

First, it seems that this exception doesn’t simply allow smoke detection to be omitted; it seems to allow the “smoke detection” to be omitted from an “automatic smoke detection system.” Doesn’t this mean that virtually no system will be installed, since the manual boxes required by 907.2.10.1 are also allowed to be omitted in sprinklered buildings? Isn’t this pushing the sprinkler reliance a little too far?

Secondly, sprinkler heads are essentially fixed-temperature heat detectors. Smoke detectors required in other parts of the ICC codes only permit heat detectors to be used where the environment is not suitable for the use of smoke detectors. It is not reasonable to expect the occupants and staff of these facilities to wait until a smoldering/small fire generates enough heat to activate a sprinkler head, when the environment allows early warning to be used. Section 907.2.10.1 indicates there won’t even be manual pull boxes at the exits, even if the fire is soon discovered by an occupant. We are also confident most fire departments would rather be informed of smoke rather than told that a sprinkler system is currently trying to control a fire.

The fire alarm and detection community has watched as manual pull boxes are permitted to be omitted, but this is the first time automatic smoke detection is permitted to be omitted. Please stop this dangerous trend and provide the early warning needed for the safe evacuation of these occupants. Sprinklers are not perfect and they do have a great reputation for saving lives, but they provide the best chances for survival when used along with the early warning provided by smoke detectors.

Cost Impact: This code change proposal would increase the cost by \$0.15 to \$0.30 per square foot.

ICCFILENAME: SHEETS-F2-907.2.10.2.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The reason provided by the proponent for this revision did not correlate well with the proposal and adequate justification for elimination of the exception when the facility is sprinklered throughout in accordance with NFPA 13 was not provided. Additionally, it was felt that the resulting level of protection if the exception was eliminated appeared to be overly restrictive.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Rick Sheets, SET National Burglar and Fire Alarm Association, requests Approval as Submitted.

Commenter's Reason: The committee action was to disapprove F111 because it was felt that removing the exception took away the sprinkler incentive. The proposal did not ask to remove the sprinklers, just to provide smoke detectors in addition to the sprinklers. Smoke detectors provide much earlier warning of a fire emergency than sprinklers. While sprinklers will certainly reduce the fire growth, since many occupants of the AHCF occupancy may need assistance in evacuating if necessary, staff should be given the maximum amount of warning. Life safety can be greatly improved by providing both smoke detection and fire sprinklers.

A number of studies validate this, such as:

"Measurement of Room Conditions and Response of Sprinklers and Smoke Detectors During a Simulated Two-Bed Hospital Patient Room Fire", Notarianni, Kathy A., 1993, NISTIR 5240, Gaithersburg, MD: National Institute of Standards and Technology, July.

Notarianni noted:

"Sprinklers in all locations tested actuated before the patient's life would be threatened by this nominally 65 kW fire for the closed door, closed door privacy curtain, and open door privacy curtain tests. However, in the shielded fire test, the sprinklers at locations S6 and S1, the standard sidewall across from the foot of patient bed #2, and the EC sidewall, on the east wall near the bathroom, respectively, activated after the life safety criterion in HAZARD I with regard to temperature was exceeded. Ionization and photoelectric detectors in all locations alarmed before the patient's life would be threatened."

Structure Fires in Residential Board and Care, Jennifer Flynn, NFPA Fire Analysis and Research, Quincy, MA, December 2009
U.S. Fire departments responded to an estimated average of 2,070 structure fires in residential board and care facilities annually during 2003-2007. These fires caused annual averages of:

- 10 civilian deaths
- 70 civilian injuries
- \$10.9 million in direct property damage

Smoking materials caused 3% of fires but 63% of the civilian deaths.

- Fires that started on mattress or bedding material caused 44% of the civilian deaths in these properties.
- Structure fires in these properties peak between 4 and 7 p.m.
- Saturday was the peak day for fires in these properties.

Public Comment 2:

Thomas Hammerberg, Automatic Fire Alarm Association, requests Approval as Submitted.

Commenter's Reason: The committee action was to disapprove F111 because it was felt the resulting level of protection was overly restrictive with the exception removed. Smoke detectors provide much earlier warning of a fire emergency than sprinklers. While sprinklers will certainly reduce the fire growth, since many occupants of the R-4 occupancy may need assistance in evacuating if necessary, staff should be given the maximum amount of warning. Life safety for both fire fighters and occupants can be greatly improved by providing both smoke detection and fire sprinklers.

A number of studies validate this, such as:

"Measurement of Room Conditions and Response of Sprinklers and Smoke Detectors During a Simulated Two-Bed Hospital Patient Room Fire", Notarianni, Kathy A., 1993, NISTIR 5240, Gaithersburg, MD: National Institute of Standards and Technology, July.

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- Fires that started on mattress or bedding material caused 44% of the civilian deaths in these properties.
- Structure fires in these properties peak between 4 and 7 p.m.
- Saturday was the peak day for fires in these properties.

Koffel, William E., 2005, "Reliability of Automatic Sprinkler Systems," SUPDET Conference, Quincy, MA: Fire Protection Research Foundation. Sprinklers operated in almost 88% of 50,000 fire incidents in apartments. These did not include fires where the fire was deemed to be too small or where sprinklers were absent from the area of fire origin. In the residential fires where the sprinklers operated, they extinguished the fire in 19% of the incidents, providing support for Koffel's following statement:

"While property loss and life loss are greatly reduced in buildings protected with an automatic sprinkler system, the sprinkler system alone is not providing the entire increased protection."

Final Action: AS AM AMPC _____ D

F112-09/10, Part I

907.2.11 (IBC [F] 907.2.11)

Proposed Change as Submitted

Proponents: Joseph Fleming, Deputy Chief, Boston Fire Department, representing The Boston, MA Fire Department; Sean DeCrane, Cleveland Fire Department representing the Cleveland, OH Fire Department and the International Association of Fire Fighters

PART I – IFC

Revise as follows:

907.2.11 (IBC [F] 907.2.11) Single and multiple-station smoke alarms. *Listed* single- and multiple-station photoelectric smoke alarms complying with UL 217 shall be installed in accordance Sections 907.2.11.1 through 907.2.11.4 and NFPA 72.

Reason: (Fleming) According to the United States Fire Administration (<http://www.usfa.dhs.gov/downloads/pdf/tfrs/v5i1.pdf>) 37% of fire fatalities occur with operational smoke alarms and another 21% occur with disabled alarms. The use of photoelectric alarms, as opposed to alarms using ionization technology could reduce both by ½. This would reduce fire deaths in the U.S. by approximately 25% which translates into over 750 lives saved each year. The following information supports this estimated benefit.

1. There are some fires where smoke alarms/detectors cannot provide a benefit: arson fires in egress paths, victims intimate with flaming fires, explosions, etc. In addition, it is unlikely that smoke alarms/detectors provide the critical warning to occupants who are awake. As a consequence, when discussing smoke alarms, we should focus our attention on the types of fires where the smoke alarm can provide a crucial benefit to occupants not on all the types of fires that occur. The vast majority of fires where a smoke alarm/detector can help occupants are smoldering fires started when the victim is asleep.

Smoke detectors should be able to save at least 60% and possibly 75% of sleeping victims, but only 13% of victims who were awake. (McGuire, J., Ruscoe, B., The Value of a Fire Detectors in the Home, Fire Study No. 9, National Research Council of Canada, Division of Building Research, Ottawa, Ont., Canada, December, 1962.)

"Delayed discovery, typically associated with fires that occur at night when everyone is asleep, also tends to be a characteristic of the smoldering fire caused by discarded smoking material. These smoldering fires are the leading causes of US fire fatalities and detectors are ideally designed to deal with them. ("A Decade of Detectors", Fire Journal 09/85, John Hall - NFPA.)

2. In flaming fires the ionization alarm/detector is faster than the photoelectric by 30-50 seconds. This extra time is virtually irrelevant to alert occupants. For example, in the recent smoke alarm testing involving flaming cooking fires (http://smokealarm.nist.gov/pdf_files/SmokeDetectors_Q&As_Feb2008.pdf), which is the most common type of flaming fire, although the photo was 30-50 seconds slower than the ionization it still provided on average over 10 minutes warning. It has often been said that in a fire "seconds count." However it is hard to imagine a scenario where the extra seconds provided by the ionization in the most common type of flaming fires makes a difference for life safety, when the photoelectric is already providing on average over 10 minutes of Available Safe Egress Time. As a consequence, although photoelectric alarms/detectors respond later in flaming fires this is a quantitative as opposed to a qualitative advantage. Here are some quotes from researchers.

The advantage of ionization smoke detectors during flaming fires is only about a 15-20 second earlier warning. This margin will only be decisive for the loss of human life in extraordinary circumstances. In general the difference between the alarm times for the optical and the ionization detectors are reduced when the detection is made from an adjacent room. (Meland, Oysten, and Lonuik, Lars, "Detection of Smoke - Full Scale Tests with Flaming and Smouldering Fires, "Fire Safety Science," - Proceedings of the Third International Symposium, July, 1991.)

Under the conditions of ignition from flames, the ionization chamber type detector exhibited a greater sensitivity to the smoke produced than the photoelectric system. However, the rate of generation of smoke was so great that the extra time given by the ionization chamber as a result may be of little practical use. (R., (Riley, K., and Rogers, S., "A Study of the Operation and Effectiveness of Fire Detectors Installed in the Bedrooms and Corridors of Residential Institutions", Fire Research Station, Fire Research Current Paper 26/78, Borehamwood, England, April 1978.)

3. In smoldering fires the photoelectric is faster than the ionization by 30 minutes or more. This extra time is critical for sleeping occupants. If the ionization was consistently providing adequate warning, it would not matter that it was slower than the photoelectric. Unfortunately it doesn't. According to NIST's testimony to the Boston City Council, "ionization alarms may not always alarm even when a room is filled with smoke from a smoldering fire." In addition, according to data collected by NIST Report during smoldering fires the ionization smoke alarm often provided less than 1-2 minutes of Available Safe Egress Time. (1-2 minutes is the minimum time needed for sleeping occupants to escape.) In fact the ionization, in many cases, was providing negative available safe egress time. (http://smokealarm.nist.gov/pdf_files/StatementfortheRecordWG1finalsmokealarmstatement.pdf)

This finding has been noted by many other researchers.

Ionization chamber type detectors, in the room of origin and the corridor, did not, in the smoldering fire tests, provide adequate warning that the escape route was impassable or that conditions in the room were potentially hazardous to life. (R., Riley, K., and Rogers, etc.)

"This test will show that most photoelectric detectors, operated by battery will detect smoke at about 1.5-3% smoke, which is good. The test will show that the photoelectric detectors operated by household current will activate between 2 and 4 %, which is still good. But, the test also will show that many ionization detectors will not activate until the smoke obscuration reaches 10-20 and sometimes 25%. ... Therefore, because of the present state of the art in detecting smoke, the Subcommittee on Smoke Detectors can take no other course but to recommend the installation of photoelectric detectors." ("Residential Smoke Alarm Report - Prepared by Special Automatic Detection Committee of the International Association of Fire Chiefs," The International Fire Chief, September 1980.)

The tests i.e. the CALCHIEFS Tests, being commented upon in the previous quote were conducted by the Los Angeles Fire Dept. They concluded that photoelectrics were the preferred smoke alarm for all hallways and bedrooms. ("An Evaluation of Fire Detectors for Residential Placement," Los Angeles City Fire Dept., Fire Prevention Bureau – Research Unit, August 1981.)

"Photoelectric detectors sighted in the hallway are more effective for detecting smoldering smoke than ionization detectors, providing adequate escape time for most conditions of size and location of the smoke sources. Ionization detectors sited in the hallway generally provide inadequate escape times unless smoke movement into the hallway is slowed down by narrow door openings, causing a slower loss of visibility, or unless they are sited close to the smoke source." (P.F. Johnson and S. K. Brown, "Smoke Detection of Smoldering Fires in a Typical Melbourne Dwelling," *Fire Technology*, Vol. 22, No. 4, 1986, pp. 295-340.)

"The ionization detectors detected smoke from a smoldering fire much later than optical (photoelectric) detectors. When the particular conditions during the fire development are taken into consideration there are reasons to indicate that this detection principle would not provide adequate safety during this type of fire" (Meland, Oysten, and Lonuik, Lars, "Detection of Smoke - Full Scale Tests with Flaming and Smouldering Fires, "Fire Safety Science," - Proceedings of the Third International Symposium, July, 1991, pp. 975-984.)

4. In addition to being inadequate at providing adequate warning in smoldering fires, several researchers have identified that the ionization smoke alarm is far more susceptible to disablement due to nuisance alarms than is the photoelectric. Here are some quotes from the recent NIST Smoke Alarm Report. <http://smokealarm.nist.gov/>

Additionally a separate study of nuisance alarm sources was conducted because this was identified as an important issue in a prior study by the U.S. Consumer Product Safety Commission. It was observed that ionization alarms had a propensity to alarm when exposed to nuisance aerosols produced in the early stages of some cooking activities, prior to noticeable smoke production. This phenomenon could be particularly vexing to homeowners who experience such nuisance alarms. ... While one third of the smoke detectors did not work on the initial test, half of these were made operational by restoring power. Homeowners interviewed revealed that most of these were intentionally disconnected due to nuisance alarms, mostly from cooking.

For the Toasting Scenario the ionization located near the kitchen responded in about 130-150 seconds. The photoelectric responded in 225-300. In fact according to NIST, "Photoelectric alarm thresholds were met only after item started to char and produce visible smoke." So although both responded, it is much more likely that the ionization will repeatedly respond to most normal toasting and be more likely to be disabled..

Here are some recent quotes by other researchers on nuisance alarms.

"Homes with ionization alarms had more than 8 times the rate of false alarms as those with photoelectric. In small rural residences, photoelectric smoke alarms have lower rates of false alarms and disconnections." (Perkins, M., "Ionization and

photoelectric smoke alarms in rural Alaskan homes," Western Journal of Medicine, 2000;173:89-92 (Contact: Alaska Injury Prevention Center, Anchorage, AK.)

"We favor photoelectric detectors to reduce rates of nuisance alarms from cooking and to provide optimal protection from cigarette related fires." (Kuklinski, D., Berger, L., Weaver, J., "Smoke detector Nuisance Alarms: A Field Study in a Native American Community," NFPA Journal; Sept/Oct. 1995.)

"On direct observation at first follow-up, ionization study alarms were more likely to be non-functional, 20% ionization vs. 5% photoelectric, with the most common reason being a disconnected or absent battery." (Mueller, B., et al, "Randomized controlled trial of ionization and photoelectric smoke alarm functionality," Injury Prevention, 2008; 14:80-86.)

Even smoke alarm manufacturers are aware of the benefits of photoelectric technology. (They just do a very poor job of communicating this to consumers.)

"The optical smoke alarm therefore is less likely to react to the results of cooking and this makes it far more suitable for installation near kitchens or in confined spaces such as bed sits. The slight price differential between the two types of alarms can be balanced out by the elimination of false alarms being triggered by nearby kitchens and bathrooms."

"Domestic smoke alarms – a guide for specifiers," Bendall, D. (BFK Brands Europe), Fire Prevention 281 July/August 1995.

"Never install ionization smoke alarms in areas where cooking fumes, open fires and products of combustion are present. Where these conditions occur and a smoke alarm must be installed, a photoelectric alarm is the best option."

<http://www.kidde.com.au/utcfs/kid/How+Smoke+Alarms+Work.html>

5. Combination alarms/detectors have the potential to provide the quickest response to both smoldering and flaming fires but due to the excessive nuisance alarms from the ionization part of the alarm/detector, they should not be allowed near kitchens and bathrooms. In addition, the minor advantage that ionization or combination have over photoelectric in flaming fires is marginal and probably not critical.

To quote a study (Mueller et al) cited earlier, "An alarm containing both technologies is more expensive; it may also be more likely rendered non-functional if either technology causes frequent nuisance alarms. Our results suggest that installing photoelectric alarms on main floors of homes similar to those in our study may increase the proportion of functioning alarms and therefore provided longer term protection,"

Other items to consider:

I am not aware of any "wireless alarms" that come as combination (photo/ion).

Both ion and photo are sold with 10 year batteries. Are Combination (ion/photo)?

Combination CO/Smoke come with CO/Ion or CO/Photo. Is there a Combo Smoke Alarm/CO?

Why require dual in sprinkled occupancies when, according to the USFA, the only type of fire that can kill someone is a smoldering fire? "Even though fire sprinklers are effective life safety devices you still need smoke alarms. Some fires can begin as smoldering fires that produce smoke and gases but don't generate enough heat to activate the sprinklers. Smoke alarms are needed to provide warning for these situations."

http://www.usfa.dhs.gov/citizens/all_citizens/home_fire_prev/manufactured/sprinklers-mh.shtm

6. I would like to mention that based on this research the Australasian Fire Authorities Council has recommended the use of photoelectric smoke alarms as opposed to ionization or combination.

http://www.afac.com.au/_data/assets/pdf_file/0020/3674/AFACSmokeAlarmposition1June2006.pdf

7. Precedents for this action.

- a. Since 1998 the Massachusetts State Building Code has mandated photoelectric smoke alarm within 20 feet of a kitchen or bathroom due to the propensity of ionization smoke alarms to experience nuisance alarms.
- b. Since 2002 **NFPA 72 (the National Fire Alarm Code)** has only allowed ionization smoke alarms near kitchens if they were equipped with a silence button. The NFPA 72 committee has finally recognized the advantage that photoelectric smoke alarms have in regards to nuisance alarms. However I take exception to their assumption that a "hush button" neutralizes the ionizations propensity for nuisance alarms. No study has shown these to be effective at reducing disablement of ionization alarms. <http://www.nfpa.org/assets/files/PDF/ROP/72-A2009-ROC.pdf> (Page 72-249)
- c. **New Vermont Law** – Photoelectric-only type of smoke alarms are required to be installed in the vicinity of any bedrooms and on each level of a dwelling, for all new dwellings and dwellings that are sold or transferred, beginning January 1, 2009. <http://www.dps.state.vt.us/fire/heating/photoelectric.html>
- d. **Massachusetts has voted to Change the State Fire Code** so that as of January 1, 2010, smoke alarms with only ionization technology will not be allowed to meet the code. <http://www.realtown.com/massachusettsrealestate/blog/massachusetts-smoke-detector-laws-changing>
- e. **The 7th Edition of the Massachusetts State Building Code** was updated so that as of January 1, 2008 smoke alarms with only ionization technology will not be allowed to meet the code. http://www.ludlow.ma.us/building/permit_applications/life-safety-systems-app.pdf

Bibliography – In addition to references cited above, the following will be provided to the committee.

1. Fleming, J., "Photoelectric vs. Ionization Detectors - A Review of the Literature," NFPRF Fire Suppression and Detection Research Symposium, Orlando, FL, 2/98.
2. Fleming, J., "Photoelectric vs. Ionization Detectors - A Review of the Literature, Revisited," (NFPRF Fire Suppression and Detection Research Symposium, Orlando, FL, 01/05. This presentation included analyses of: 1) 30 years of smoke detector studies, 2) the National Institute of Standards Smoke Detector Project, 3) statistic regarding the effectiveness of smoke detectors, and 4) the effectiveness of Underwriter's Labs Smoke Detector Approval Standard, UL217.)
3. Fleming, J., "Smoke Detectors and the Investigation of Fatal Fires," Published in May 2000 issue of "Fire & Arson Investigator", the official magazine of International Association of Arson Investigators. (Also published on Interfire.org, an Arson Resource Website – posted 02/01.)

Reason: (DeCrane) I do not want to get into me too testimony, even during the reason statement, and my colleague Joseph Fleming from the Boston Fire Department has written an extensive Reason Statement. This will make it difficult to go in depth referencing various reports as Chief Fleming has provided the technical substantiation for this code change.

As a representative of the International Association of Fire Fighters (IAFF), I represent the professional fire fighters of North America. At the IAFF's most recent convention, the Union representatives of over 280,000 professional fire fighters across the United States and Canada, with representatives from the United Kingdom, Australia and New Zealand, voted unanimously to support the requirement of photoelectric smoke detectors.

The representatives, of those who respond to difficult fire scenes involving thousands of fatalities, have determined it is time to move forward with the requirement of photoelectric smoke detectors. Countless times our members have responded to residential fires and removed victims who had disabled their detectors due to nuisance alarms. Tragically many of these families forgot to replace the batteries or reinstall the hard wire detector when they were finished cooking. Unfortunately in many incidents these occupants, or a loved one, ended up paying the ultimate price for their forgetfulness, or some may argue, the lack of the detector industry addressing the problem.

On behalf of the nation's professional fire fighters we request your support for this code change.

Cost Impact: (Fleming) The code change proposal will not increase construction costs in any meaningful manner. The cost difference between ionization and photoelectric is minimal, particularly when one considers the benefit.

Cost Impact: (DeCrane) The code change proposal will minimally increase construction costs.

ICCFILENAME: FLEMING-DECRANE-F1-907.2.11

Public Hearing Results

PART I- IFC

Committee Action:

Disapproved

Committee Reason: The committee disapproved the code change as they felt that the standards development process should address concerns with the performance of smoke alarms. There was also a concern that by stating a specific type of technology, future technologies could potentially be limited. Finally, there appeared to be conflicting data on the performance of ionization and photoelectric smoke alarms with the reason statement.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Joseph Fleming, Deputy Chief, Boston Fire Department, representing The Boston, MA Fire Department, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

907.2.11 (IBC [F] 907.2.11) Single and multiple-station smoke alarms. *Listed* single- and multiple-station photoelectric smoke alarms complying with UL 217 shall be installed in accordance with Sections 907.2.11.1 through 907.2.11.4 and NFPA 72. New installations of smoke alarms shall not rely solely on ionization technology to detect a fire.

Any smoke alarm newly installed within 20 feet of a kitchen or bathroom cannot include ionization technology even if used in combination with other detection technology

Commenter's Reason: There were 4 reasons that appeared to concern the Committee about the original proposal: 1) it would apply to existing alarms, 2) it would limit new technology, 3) Some Committee members thought the ICC should defer to the standards, i.e. NFPA/UL, process, and 4) There was conflicting data supporting the proposal. I will address all 4 concerns.

1) Existing Alarms

This new language makes it clear that it is only meant to apply to new alarms installed to comply with this code.

2) Limit of New Technology

This language will allow for new technology while not allowing technology, old or new, that relies solely on ionization technology to detect fires. Ion technology has been repeatedly shown to have 2 flaws (often fatal flaws): 1) poor response to smoldering smoke and 2) excessive nuisance alarms, leading to excessive disablement. Either flaw would justify this proposal.

3) Deference to Standards Process

The ICC is a group that represents code officials. The "standards groups" are theoretically consensus groups. In reality the code officials and AHJ's are almost always a minority on these Committees. Here is a quote from Hyman Rickover, "Father of the Nuclear Navy" to Congress in 1970.

"The typical industry-controlled code or standard is formulated by a committee elected or appointed by a technical society or similar group. Many of the committee members are drawn from the manufacturers to whom the code is to be applied. Others are drawn from engineering consulting firms and various Government organizations. However, since near unanimous agreement in the committee must generally be obtained to set requirements or to change them, the code represents a minimum level of requirements that is acceptable to industry. ... In a subtle way, the use of industry codes or standards tends to create a false sense of security. Described by code committees and by the language of many codes themselves as safety rules, they tend to inhibit those legally responsible for protecting the public from taking the necessary action to safeguard health and well being. Many states and municipalities have incorporated these codes into their laws, thus, in effect delegating to code committees their own responsibility for protecting the public."

By deferring to the "standards process" the ICC would be "delegating their own responsibility for protecting the public" to the industry. The ICC has not delegated their own opinion to the National Association of Home Builders etc. on the sprinkler issue but it has essentially done this in regards to smoke detectors. I would request that the ICC judge my proposal on its own merits and not defer to the "value judgments" of groups who may not represent the public interest. When "neutral" committees, e.g. Vermont Legislature, and Massachusetts Fire and Building Code Boards, reviewed my proposals, to restrict the use ionization technology, they were adopted. (Maine recently adopted language mandating photoelectric alarms within 20 feet of a kitchens or bath. This copied language that I authored for the Massachusetts Building Code in 1998.)

4) Conflicting Data in Supporting Material

I found this comment confusing. I am not aware of any conflicting data that was submitted with the reason statement and none was pointed out at the Hearing or in the "Committee Reason." The failure to point a specific "conflict" makes it impossible for me to challenge this assertion but I will try.

There may exist some studies that show the ionization to be effective however, as I have pointed out in papers that I have written, which have been submitted to the ICC these studies have one of the following characteristics: 1) they utilized older ion technology that was set to a higher sensitivity, they utilized non-synthetics furniture, which produces a type of smoke to which the ion is more sensitive, 3) they used fires that were either flaming or smoldered for only a short period of time, or 4) they never produced untenable conditions. The studies that I referenced have the following things in common which make them relevant to my proposal: 1) used technology similar to today's, 2) used synthetic furniture, 3) allowed fires to develop to untenable conditions, and 4) smoldered material for over 30 minutes. **In every case the researcher obtained results which indicated that the ionization alarm failed in many smoldering tests.** In addition to the studies that I have previously submitted I will add another.

http://smokealarm.nist.gov/pdf_files/Smoke%20Detector_Supplementary%20Qs%20&%20As_091107.pdf

In response to questions that I had submitted NIST published this document. At the bottom of page 2 the following information can be obtained.

	Available safe Egress Time (s) Average +/- 1 Standard Deviation	
	Photoelectric Alarms	Ionization Alarms
Smoldering	2136 +/- 1011	276 +/- 331
Flaming*	129 +/- 74	177 +/- 69
Cooking	739 +/- 148	796 +/- 241

These "flaming" have been characterized by some researchers as "ultra-fast" fires. Most flaming fires have a more moderate growth rate, e.g. cooking fires.

I would like to point out the following:

The only scenario that is producing "negative" escape times is the smoldering scenario with ionization alarms.

In the smoldering scenarios the photoelectric is on average 30 minutes faster than the ionization

In the most common flaming scenario, i.e. the cooking scenario, the ionization is on average 60 seconds faster than the photoelectric, however the photoelectric is still providing over 8 minutes of ASET so the extra 60 seconds is meaningless.

Even in the "ultra-fast" flaming fires the photoelectric is on average providing over 2 minutes warning.

If the Committee, once again rejects my proposal I would request that they identify the studies which indicate that the ionization is adequate for smoldering fires involving synthetic material. In my opinion this is probably the most common non-arson fatal scenario that occurs in the US while occupants are sleeping.

Some argue that if I am correct then why do the statistics indicate that ionization smoke alarms have been so effective. A close analysis of the available data will show that the statistics support my position.

According to the NFPA, (Ahrens 2009) having a smoke alarm reduce your chances of dying in a fire by about 50%. However, this reduction is only obtained if one includes "confined fires." (According to the USFA confined fires are rarely dangerous.) If one only looks at unconfined fires the following results are obtained. (Anyone with access to this report can do the same analysis.)

	Risk with working alarms	Risk without working alarms	% Reduction
All Fire & All Homes	1040/1764 = 0.589	1780/1537 = 1.158	(1.158-0.589)/1.158 = 49% reduction
Unconfined Fires & All Homes	1030/842 = 1.223	1780/1052 = 1.692	(1.692-1.223)/1.692 = 28% Reduction
Unconfined Fires in Apartments	240/190 = 1.263	200/166 = 1.20	(1.20-1.263)/1.20 = 5% Increase

▪ Risk, according to the NFPA, is defined as (# Fatalities / 100 Fires)

So smoke alarms, i.e. ionization smoke alarms are not nearly as effective as we are led to believe. The reduction in risk is only 28%. This is particularly troubling since some of the reduction in risk is probably due to socio-economic factors, e.g. poverty. In apartments, where the occupant has to usually exit through the living room they provide no statistical advantage. In fact there is a 5% increase in risk. I do not mean to state that ionization smoke alarms are not better than having no smoke alarm. I do mean to state that if smoke alarms are to achieve the life saving potential that people expect and deserve, we cannot allow ionization smoke alarms to be allowed to meet the code.

Public Comment 2:

Marcelo M. Hirschler, GBH International, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

907.2.11 (IBC [F] 907.2.11) Single and multiple-station smoke alarms. *Listed* single- and multiple-station photoelectric-smoke alarms complying with UL 217 shall be installed in accordance with Sections 907.2.11.1 through 907.2.11.4 and NFPA 72. New installations of smoke alarms shall not rely solely on ionization technology to detect a fire.

Commenter's Reason: The technical committee was concerned about two issues: (a) that the original proposal would require the replacement of existing detectors and (b) that the proposal would not permit the use of combination detectors. The revised language addresses this by stating that it is only new installations of detectors that need to be of the photoelectric type and that combination detectors are also permitted.

The technical rationale for needing photoelectric detectors has been well covered in the reasons for the original proposal.

Final Action: AS AM AMPC_____ D

F112-09/10, Part II IRC R314.1

Proposed Change as Submitted

Proponents: Joseph Fleming, Deputy Chief, Boston Fire Department, representing The Boston, MA Fire Department; Sean DeCrane, Cleveland Fire Department representing the Cleveland, OH Fire Department and the International Association of Fire Fighters

PART II – IRC BUILDING/ENERGY

Revise as follows:

R314.1 Smoke detection and notification. All smoke alarms installed to meet the requirements of this code shall be the photoelectric type and shall be listed in accordance with UL 217 and installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72.

Reason: (Fleming) According to the United States Fire Administration (<http://www.usfa.dhs.gov/downloads/pdf/tfrs/v5i1.pdf>) 37% of fire fatalities occur with operational smoke alarms and another 21% occur with disabled alarms. The use of photoelectric alarms, as opposed to alarms using ionization technology could reduce both by ½. This would reduce fire deaths in the U.S. by approximately 25% which translates into over 750 lives saved each year. The following information supports this estimated benefit.

1. There are some fires where smoke alarms/detectors cannot provide a benefit: arson fires in egress paths, victims intimate with flaming fires, explosions, etc. In addition, it is unlikely that smoke alarms/detectors provide the critical warning to occupants who are awake. As a consequence, when discussing smoke alarms, we should focus our attention on the types of fires where the smoke alarm can provide a crucial benefit to occupants not on all the types of fires that occur. The vast majority of fires where a smoke alarm/detector can help occupants are smoldering fires started when the victim is asleep.

Smoke detectors should be able to save at least 60% and possibly 75% of sleeping victims, but only 13% of victims who were awake. (McGuire, J., Ruscoe, B., The Value of a Fire Detectors in the Home, Fire Study No. 9, National Research Council of Canada, Division of Building Research, Ottawa, Ont., Canada, December, 1962.)

"Delayed discovery, typically associated with fires that occur at night when everyone is asleep, also tends to be a characteristic of the smoldering fire caused by discarded smoking material. These smoldering fires are the leading causes of US fire fatalities and detectors are ideally designed to deal with them. ("A Decade of Detectors", Fire Journal 09/85, John Hall - NFPA.)

2. In flaming fires the ionization alarm/detector is faster than the photoelectric by 30-50 seconds. This extra time is virtually irrelevant to alert occupants. For example, in the recent smoke alarm testing involving flaming cooking fires (http://smokealarm.nist.gov/pdf_files/SmokeDetectors_Q&As_Feb2008.pdf), which is the most common type of flaming fire, although the photo was 30-50 seconds slower than the ionization it still provided on average over 10 minutes warning. It has often been said that in a fire "seconds count." However it is hard to imagine a scenario where the extra seconds provided by the ionization in the most common type of flaming fires makes a difference for life safety, when the photoelectric is already providing on average over 10 minutes of Available Safe Egress Time. As a consequence, although photoelectric alarms/detectors respond later in flaming fires this is a quantitative as opposed to a qualitative advantage. Here are some quotes from researchers.

The advantage of ionization smoke detectors during flaming fires is only about a 15-20 second earlier warning. This margin will only be decisive for the loss of human life in extraordinary circumstances. In general the difference between the alarm times for the optical and the ionization detectors are reduced when the detection is made from an adjacent room. (Meland, Oysten, and Loniik, Lars, "Detection of Smoke - Full Scale Tests with Flaming and Smoldering Fires, "Fire Safety Science," - Proceedings of the Third International Symposium, July, 1991.)

Under the conditions of ignition from flames, the ionization chamber type detector exhibited a greater sensitivity to the smoke produced than the photoelectric system. However, the rate of generation of smoke was so great that the extra time given by

the ionization chamber as a result may be of little practical use. (R., Riley, K., and Rogers, S., "A Study of the Operation and Effectiveness of Fire Detectors Installed in the Bedrooms and Corridors of Residential Institutions", Fire Research Station, Fire Research Current Paper 26/78, Borehamwood, England, April 1978.)

3. In smoldering fires the photoelectric is faster than the ionization by 30 minutes or more. This extra time is critical for sleeping occupants. If the ionization was consistently providing adequate warning, it would not matter that it was slower than the photoelectric. Unfortunately it doesn't. According to NIST's testimony to the Boston City Council, *"ionization alarms may not always alarm even when a room is filled with smoke from a smoldering fire."* In addition, according to data collected by NIST Report during smoldering fires the ionization smoke alarm often provided less than 1-2 minutes of Available Safe Egress Time. (1-2 minutes is the minimum time needed for sleeping occupants to escape.) In fact the ionization, in many cases, was providing negative available safe egress time.
(http://smokealarm.nist.gov/pdf_files/StatementfortheRecordWG1finalsmokealarmstatement.pdf)

This finding has been noted by many other researchers.

Ionization chamber type detectors, in the room of origin and the corridor, did not, in the smoldering fire tests, provide adequate warning that the escape route was impassable or that conditions in the room were potentially hazardous to life. (R., Riley, K., and Rogers, etc.)

"This test will show that most photoelectric detectors, operated by battery will detect smoke at about 1.5-3% smoke, which is good. The test will show that the photoelectric detectors operated by household current will activate between 2 and 4 %, which is still good. But, the test also will show that many ionization detectors will not activate until the smoke obscuration reaches 10-20 and sometimes 25%. ... Therefore, because of the present state of the art in detecting smoke, the Subcommittee on Smoke Detectors can take no other course but to recommend the installation of photoelectric detectors." ("Residential Smoke Alarm Report - Prepared by Special Automatic Detection Committee of the International Association of Fire Chiefs," The International Fire Chief, September 1980.)

The tests i.e. the CALCHIEFS Tests, being commented upon in the previous quote were conducted by the Los Angeles Fire Dept. They concluded that photoelectrics were the preferred smoke alarm for all hallways and bedrooms. ("An Evaluation of Fire Detectors for Residential Placement," Los Angeles City Fire Dept., Fire Prevention Bureau – Research Unit, August 1981.)

"Photoelectric detectors sited in the hallway are more effective for detecting smoldering smoke than ionization detectors, providing adequate escape time for most conditions of size and location of the smoke sources. Ionization detectors sited in the hallway generally provide inadequate escape times unless smoke movement into the hallway is slowed down by narrow door openings, causing a slower loss of visibility, or unless they are sited close to the smoke source." (P.F. Johnson and S. K. Brown, "Smoke Detection of Smoldering Fires in a Typical Melbourne Dwelling," *Fire Technology*, Vol. 22, No. 4, 1986, pp. 295-340.)

"The ionization detectors detected smoke from a smoldering fire much later than optical (photoelectric) detectors. When the particular conditions during the fire development are taken into consideration there are reasons to indicate that this detection principle would not provide adequate safety during this type of fire". (Meland, Oysten, and Lonuik, Lars, "Detection of Smoke - Full Scale Tests with Flaming and Smoldering Fires," *Fire Safety Science*, - Proceedings of the Third International Symposium, July, 1991, pp. 975-984.)

4. In addition to being inadequate at providing adequate warning in smoldering fires, several researchers have identified that the ionization smoke alarm is far more susceptible to disablement due to nuisance alarms than is the photoelectric. Here are some quotes from the recent NIST Smoke Alarm Report. <http://smokealarm.nist.gov/>

Additionally a separate study of nuisance alarm sources was conducted because this was identified as an important issue in a prior study by the U.S. Consumer Product Safety Commission. It was observed that ionization alarms had a propensity to alarm when exposed to nuisance aerosols produced in the early stages of some cooking activities, prior to noticeable smoke production. This phenomenon could be particularly vexing to homeowners who experience such nuisance alarms. ... While one third of the smoke detectors did not work on the initial test, half of these were made operational by restoring power. Homeowners interviewed revealed that most of these were intentionally disconnected due to nuisance alarms, mostly from cooking.

For the Toasting Scenario the ionization located near the kitchen responded in about 130-150 seconds. The photoelectric responded in 225-300. In fact according to NIST, *"Photoelectric alarm thresholds were met only after item started to char and produce visible smoke."* So although both responded, it is much more likely that the ionization will repeatedly respond to most normal toasting and be more likely to be disabled..

Here are some recent quotes by other researchers on nuisance alarms.

"Homes with ionization alarms had more than 8 times the rate of false alarms as those with photoelectric. In small rural residences, photoelectric smoke alarms have lower rates of false alarms and disconnections." (Perkins, M., "Ionization and photoelectric smoke alarms in rural Alaskan homes," *Western Journal of Medicine*, 2000;173:89-92 (Contact: Alaska Injury Prevention Center, Anchorage, AK.))

"We favor photoelectric detectors to reduce rates of nuisance alarms from cooking and to provide optimal protection from cigarette related fires." (Kuklinski, D., Berger, L., Weaver, J., "Smoke detector Nuisance Alarms: A Field Study in a Native American Community," *NFPA Journal*; Sept/Oct. 1995.)

"On direct observation at first follow-up, ionization study alarms were more likely to be non-functional, 20% ionization vs. 5% photoelectric, with the most common reason being a disconnected or absent battery." (Mueller, B., et al, "Randomized controlled trial of ionization and photoelectric smoke alarm functionality," *Injury Prevention*, 2008; 14:80-86.)

Even smoke alarm manufacturers are aware of the benefits of photoelectric technology. (They just do a very poor job of communicating this to consumers.)

"The optical smoke alarm therefore is less likely to react to the results of cooking and this makes it far more suitable for installation near kitchens or in confined spaces such as bed sits. The slight price differential between the two types of alarms can be balanced out by the elimination of false alarms being triggered by nearby kitchens and bathrooms."

"Domestic smoke alarms – a guide for specifiers," Bendall, D. (BFK Brands Europe), *Fire Prevention* 281 July/August 1995.

"Never install ionization smoke alarms in areas where cooking fumes, open fires and products of combustion are present. Where these conditions occur and a smoke alarm must be installed, a photoelectric alarm is the best option."
<http://www.kidde.com.au/utcs/kid/How+Smoke+Alarms+Work.html>

5. Combination alarms/detectors have the potential to provide the quickest response to both smoldering and flaming fires but due to the excessive nuisance alarms from the ionization part of the alarm/detector, they should not be allowed near kitchens and bathrooms. In addition, the minor advantage that ionization or combination have over photoelectric in flaming fires is marginal and probably not critical.

To quote a study (Mueller et al) cited earlier, *"An alarm containing both technologies is more expensive; it may also be more likely rendered non-functional if either technology causes frequent nuisance alarms. Our results suggest that installing photoelectric alarms on main floors of homes similar to those in our study may increase the proportion of functioning alarms and therefore provided longer term protection,"*

Other items to consider:

I am not aware of any "wireless alarms" that come as combination (photo/ion).

Both ion and photo are sold with 10 year batteries. Are Combination (ion/photo)?

Combination CO/Smoke come with CO/Ion or CO/Photo. Is there a Combo Smoke Alarm/CO?

Why require dual in sprinkled occupancies when, according to the USFA, the only type of fire that can kill someone is a smoldering fire? *"Even though fire sprinklers are effective life safety devices you still need smoke alarms. Some fires can begin as smoldering fires that produce smoke and gases but don't generate enough heat to activate the sprinklers. Smoke alarms are needed to provide warning for these situations."*

(http://www.usfa.dhs.gov/citizens/all_citizens/home_fire_prev/manufactured/sprinklers-mh.shtm)

6. I would like to mention that based on this research the Australasian Fire Authorities Council has recommended the use of photoelectric smoke alarms as opposed to ionization or combination.

http://www.afac.com.au/data/assets/pdf_file/0020/3674/AFACSmokeAlarmposition1June2006.pdf

7. Precedents for this action.

- Since 1998 the Massachusetts State Building Code has mandated photoelectric smoke alarm within 20 feet of a kitchen or bathroom due to the propensity of ionization smoke alarms to experience nuisance alarms.
- Since 2002 **NFPA 72 (the National Fire Alarm Code)** has only allowed ionization smoke alarms near kitchens if they were equipped with a silence button. The NFPA 72 committee has finally recognized the advantage that photoelectric smoke alarms have in regards to nuisance alarms. However I take exception to their assumption that a "hush button" neutralizes the ionizations propensity for nuisance alarms. No study has shown these to be effective at reducing disablement of ionization alarms.
<http://www.nfpa.org/assets/files/PDF/ROP/72-A2009-ROC.pdf> (Page 72-249)
- New Vermont Law** – Photoelectric-only type of smoke alarms are required to be installed in the vicinity of any bedrooms and on each level of a dwelling, for all new dwellings and dwellings that are sold or transferred, beginning January 1, 2009.
<http://www.dps.state.vt.us/fire/heating/photoelectric.html>
- Massachusetts has voted to Change the State Fire Code** so that as of January 1, 2010, smoke alarms with only ionization technology will not be allowed to meet the code. <http://www.realtown.com/massachusettsrealestate/blog/massachusetts-smoke-detector-laws-changing>
- The 7th Edition of the Massachusetts State Building Code** was updated so that as of January 1, 2008 smoke alarms with only ionization technology will not be allowed to meet the code. http://www.ludlow.ma.us/building/permit_applications/life-safety-systems-app.pdf

Bibliography – In addition to references cited above, the following will be provided to the committee.

- Fleming, J., *"Photoelectric vs. Ionization Detectors - A Review of the Literature,"* NFPRF Fire Suppression and Detection Research Symposium, Orlando, FL, 2/98.
- Fleming, J., *"Photoelectric vs. Ionization Detectors - A Review of the Literature, Revisited,"* (NFPRF Fire Suppression and Detection Research Symposium, Orlando, FL, 01/05. This presentation included analyses of: 1) 30 years of smoke detector studies, 2) the National Institute of Standards Smoke Detector Project, 3) statistic regarding the effectiveness of smoke detectors, and 4) the effectiveness of Underwriter's Labs Smoke Detector Approval Standard, UL217.)
- Fleming, J., *"Smoke Detectors and the Investigation of Fatal Fires,"* Published in May 2000 issue of "Fire & Arson Investigator", the official magazine of International Association of Arson Investigators. (Also published on Interfire.org, an Arson Resource Website – posted 02/01.)

Reason: (DeCrane) I do not want to get into me too testimony, even during the reason statement, and my colleague Joseph Fleming from the Boston Fire Department has written an extensive Reason Statement. This will make it difficult to go in depth referencing various reports as Chief Fleming has provided the technical substantiation for this code change.

As a representative of the International Association of Fire Fighters (IAFF), I represent the professional fire fighters of North America. At the IAFF's most recent convention, the Union representatives of over 280,000 professional fire fighters across the United States and Canada, with representatives from the United Kingdom, Australia and New Zealand, voted unanimously to support the requirement of photoelectric smoke detectors.

The representatives, of those who respond to difficult fire scenes involving thousands of fatalities, have determined it is time to move forward with the requirement of photoelectric smoke detectors. Countless times our members have responded to residential fires and removed victims who had disabled their detectors due to nuisance alarms. Tragically many of these families forgot to replace the batteries or reinstall the hard wire detector when they were finished cooking. Unfortunately in many incidents these occupants, or a loved one, ended up paying the ultimate price for their forgetfulness, or some may argue, the lack of the detector industry addressing the problem.

On behalf of the nation's professional fire fighters we request your support for this code change.

Cost Impact: (Fleming) The code change proposal will not increase construction costs in any meaningful manner. The cost difference between ionization and photoelectric is minimal, particularly when one considers the benefit.

Cost Impact: (DeCrane) The code change proposal will minimally increase construction costs.

ICCFILENAME: FLEMING-DECRANE-F1-907.2.11

Public Hearing Results

**PART II- IRC B/E
Committee Action:**

Disapproved

Committee Reason: The proposed language would only permit the photoelectric type. This change would exclude other types and would limit future technology.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Joseph Fleming, Deputy Chief, Boston Fire Department, representing The Boston, MA Fire Department, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

R314.1 Smoke detection and notification. All smoke alarms installed to meet the requirements of this code shall be the photoelectric type and shall be listed in accordance with UL 217 and installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72. New installations of smoke alarms shall not rely solely on ionization technology to detect a fire.

Any smoke alarm newly installed within 20 feet of a kitchen or bathroom cannot include ionization technology even if used in combination with other detection technology

Commenter's Reason: See F112-09/10, Part I

Public Comment 2:

Marcelo M. Hirschler, GBH International, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

R314.1 Smoke detection and notification. All smoke alarms installed to meet the requirements of this code shall be the photoelectric type and shall be listed in accordance with UL 217 and installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72. New installations of smoke alarms shall not rely solely on ionization technology to detect a fire.

Commenter's Reason: See F112-09/10, Part I

Final Action: AS AM AMPC _____ D

F113-09/10

907.2.11.2 (IBC [F] 907.2.11.2)

Proposed Change as Submitted

Proponent: Rick Sheets, Fire Committee Chair, Brinks Home Security, representing National Burglar and Fire Alarm Association

Revise as follows:

907.2.11.2 (IBC [F] 907.2.11.1) Groups R-2, R-3, R-4 and I-1. Single- or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-3, R-4 and I-1 regardless of *occupant load* at all of the following locations:

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.
2. In each room used for sleeping purposes.

~~**Exception:** Single or multiple station smoke alarms in Group I-1 shall not be required where smoke detectors are provided in the sleeping rooms as part of an automatic smoke detection system.~~

3. In each *story* within a *dwelling unit*, including basements but not including crawl spaces and uninhabitable *attics*. In *dwelling*s or *dwelling units* with split levels and without an intervening door between the adjacent levels, a smoke alarm or smoke detector installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full *story* below the upper level.

Exception: Single- or multiple-station smoke alarms in Groups R-2, R-3, R-4, and I-1 shall not be required where smoke detectors are part of an automatic smoke detection system and installed in all the locations required by Section 907.2.11.2.

Reason: There is no logical reason that these other groups (R-2, R-3, R-4) should be discouraged from installing superior fire alarm and detection systems. Professional protection using system-type smoke detection, with all its associated technological features, should be allowed for all similar occupancies, not just I-1. Chapter one of this code at 104.09 states that equal or superior alternate methods are allowed.

Cost Impact: The code change proposal will not increase the cost of construction. (No increase is required, but the change allows for optional protection at additional costs.)

ICCFILENAME: SHEETS-F7-907.2.11.2.DOC

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The proposal was disapproved with concern that connection to the main fire alarm occupant notification system may create many unnecessary alarms throughout the building. These unnecessary alarms would result in occupants not reacting appropriately in a situation where evacuation is necessary.

Assembly Action:

-None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Rick Sheets, SET National Burglar and Fire Alarm Association, requests Approval as Submitted.

Commenter's Reason: Stating that unnecessary alarms would be created by using system smoke detectors insinuates that a poor design of the smoke detection system was installed. These devices can also be programmed to only sound in the detector and announce a constantly attended location without sounding the entire building alarm.

Final Action: AS AM AMPC____ D

F116-09/10, Part I

907.2.12 (New) [IBC [F] 907.2.12 (New)], 4603.8 (New)

Proposed Change as Submitted

Proponent: David Fredrick Scarelli representing DBA-Sentry Signal Company

PART I – IFC

Add new text as follows:

907.2.12 (IBC [F] 907.2.12) Line type heat detection. A line type heat detection system that activates at 475°F (246°C) shall be installed in Group R Occupancies in accordance with Sections 907.2.12.1 through 907.2.12.2, NFPA 72, NFPA 70 and manufacturer's instructions.

907.2.12.1 (IBC [F] 907.2.12.1) Location. A line type heat detection shall be installed in the following locations:

1. Above all NM-B Cable
2. Above all electrical boxes
3. Above or near all raceways.

907.2.12.2 (IBC [F] 907.2.12.2) Interconnection. The line type heat detection system shall be interconnected with the smoke alarms required by Section 907.2.11 in such a manner that when the line type heat detection activates such detection shall activate the smoke alarms in all sleeping units and dwelling units.

4603.8 Line type heat detection. A line type heat detection that activates at 475° F (246°C) shall be installed in existing Group R Occupancies in accordance with Sections 4603.8.1 through 4603.8.2, NFPA 72, NFPA 70 and manufacturer's instructions.

4603.8.1 Location. Line type heat detection shall be installed in the following locations:

1. Above all exposed NM-B Cable
2. Above all electrical boxes
3. Above or near all raceways.

4603.8.2 Interconnection. The line type heat detection system shall be interconnected with the smoke alarms required by Section 907.2.11 in such a manner that when the line type heat detection activates such detection shall activate the smoke alarms in all sleeping and dwelling units.

Reason: According to death certificate data, 25% of fire and flame deaths in 2002 were due to smoke inhalation alone, 26% due to burns and 21% to a combination of burns and smoke inhalation. There were 517,000 structural, 3,140 civilian deaths and 17,730 civilian injuries. *(page 37).

ESCAPING – all seemed savable ...; SLEEPING – 1/3 estimated as savable; RESCUING OR FIREFIGHTING – ¾ estimated savable ...**

Reanalysis of who can be saved. (see additional data attached)

Deterioration of electrical wiring caused by time or the environment is a predominant cause of ignition. *+ (pg. 24)

Fires in electrical distribution systems contribute significantly to the U.S. fire problem, accounting for a consistent portion of the problem year after year. *+ (page 69)

In 2006 an estimated 71,360 injuries involving electrical distribution or lighting equipment were reported to hospital emergency rooms. +

Electrical distributions and lighting equipment dwelling fires are the only type of home fires that have been shown to increase in frequency with increasing dwelling age. *+

The majority of 2002-2005 non-confined home structure fires involving electrical distribution or lighting equipment began with the ignition of products and materials often found in structural areas, including wire or cable insulation (30%), structural members or framing (12%), insulation within the structural area (5%). Pg 6#

Three-fourths (75%) of deaths in 2002-2005 home fires involving electrical distribution or lighting equipment involved victims who were outside the area of origin when the fire began. (pg 6#)

Branch circuit wiring (51%) accounted for half of the 2002-2005 non-confined home structure fires involving wiring. (pg 54 #)

Half (52%) of 2002-2005 non-confined home structure fires involving wiring began in fire areas of origin that are all concealed or exterior spaces. (pg 55 #)

The majority (57%) of 2002-2005 non-confined home structure fires involving overcurrent protection devices began with ignition wire or cable insulation. (pg 89#)

SUMMARY: Electrical distribution equipment is a highly significant contributor to the high number of civilian deaths and civilian injuries resulting year after year in home fires. Many lives can be saved and injuries prevented if earlier warning can be sounded.

CONCLUSION: The line type open switch activated by heat and/or fire is designed by earliest warning to prevent death by asphyxiation and burning.

(6b) Circuitry short circuits and overloads trip the circuit breakers when the breaker rating is reached. Lower leakage causes hot spots along the line and eventually causes fires that could be detected long before they could become autocatalytic. The line type open switch is designed to detect this hazard long before life is endangered.

Bibliography

- + Characteristics of Home Fire Victims, NFPA, Fire analysis and Research Division. July, 2005. Pg. 59, John R. Hall Jr.
- ** How Many People Can be Saved From Home Fires if Given More Time to Escape? Fire Technology, 40. Pgs 117-126, 2004: John R. Hall Jr. Fire Analysis and Research Division, NFPA
- + Statistics from National Electronic Injury Surveillance System (NEISS). Data obtained from the U.S. Consumer Product Safety Commission (CPSC) website, www.cpsc.gov
- *+ Linda E. Smith and Dennis McCoskrie, "What Causes Wiring Fires in Residences?" Fire Journal, Jan/Feb 1990. Volume 84, Number 1
- # "Home Structure Fires Involving Electrical Distribution and Lighting Equipment." John R. Hall, Jr., Fire Analysis and Research Division, NFPA, March 2008.

Cost Impact: This code change proposal will increase the cost of construction.

ICCFILENAME: SCARELLI F1-907.2.12.DOC

Public Hearing Results

PART I- IFC

Committee Action:

Disapproved

Committee Reason: The committee disapproved the proposal as the requirements seemed difficult to enforce and unnecessary. More specifically, the hazards that the proponent is concerned with are already addressed with the reference to the National Electrical Code.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

David F. Scarelli representing Sentry Signal Company, requests Approval as Submitted.

Commenter's Reason: The line type heat sensor should not be any more difficult to enforce than any other Fire Code. It is a life saving factor at the point and time of origin. The NEC does not cover the wall and ceiling enclosures with a heat sensing device. The wood destructively distillates inflammable gasses. When the gasses coalesce with air it becomes an inflammable mixture. Only a spark is required to burst the dwelling into flames capturing and possibly asphyxiating the occupants.

The NEC covers the living sections of a dwelling with heat and smoke sensors. It covers circuit overload with arc-fault circuit –interrupters. None of these systems quickly intercept lightning strikes, grass fires (fires from outside the structure), chimney faults, etc. The line type heat sensor (Line type open switch which closes when heat activated or contact by flame).

NOTE: The NEC strives to minimize fires while the Line Type Heat Sensor- (Line Type Open Switch)- strives to minimize deaths and injuries. Future technical innovations will continue to minimize both.

References:

Science fair project on fires -Does wood Burn? <http://www.madsci.org/posts/archives/2000-03/953740466.Ch.r.html>

Why does smoke come from fire? <http://www.howstuffworks.com/question43.htm>

Couple Died on anniversary, Democrat and Chronicle, August 7, 2007– <http://www.DemocratandChronicle.com>

House Burns; Four are Safe, Democrat and Chronicle, August 4, 2007 <http://www.DemocratandChronicle.com>

Students Death ruled Accidental , Democrat and Chronicle, August 14, 2007 <http://www.DemocratandChronicle.com>

New Hampshire Title XII Public Safety and Welfare Chapter 155-A New Hampshire Building Code <http://www.gencourt.state.nh.us/rsa/html/xii/155-A/155-A-mrg.htm>

Chapter XI Fire Prevention Code – NJ (Oakland Borough) http://70.168.205.112/oakland_nj/lpext.dll/Infobase/oaklandc11.htm?fn=document-frame.htm&f=templates&2.0

Memo Adoption of IBC and IFC from CA State Fire Marshal, July 12, 2005 (see second paragraph)
<http://www.osfm.fire.ca.gov/codedevelopment/pdf/codeadoption/Code%20Adoption%20History/adpotionofibcandifc.pdf>

Final Action: AS AM AMPC____ D

F116-09/10, Part II

IRC R314.5 (New), R314.5.1(New), R314.5.2 (New), R314.5.3 (New)

Proposed Change as Submitted

Proponent: David Fredrick Scarelli representing DBA-Sentry Signal Company

PART II – IRC

Add new text as follows:

R314.5 Line type heat detection. A line type heat detection system that activates at 475°F(246°C) shall be installed in accordance with Sections 314.5.1 through 314.5.2, NFPA 72, NFPA 70 and manufacturer's instructions.

R314.5.1 Location. Line type heat detection shall be installed in the following locations:

1. Above all NM-B Cable
2. Above all electrical boxes
3. Above or near all raceways.

R314.5.2 Interconnection. The line type heat detection system shall be interconnected with the smoke alarms in such a manner that when the line type heat detection activates such detection shall activate all of the alarms in the dwelling unit. Where there are two dwelling units the line type heat detection shall be interconnected with the smoke alarms in both dwelling units.

Reason: According to death certificate data, 25% of fire and flame deaths in 2002 were due to smoke inhalation alone, 26% due to burns and 21% to a combination of burns and smoke inhalation. There were 517,000 structural, 3,140 civilian deaths and 17,730 civilian injuries. *(page 37).

ESCAPING – all seemed savable ...; SLEEPING – 1/3 estimated as savable; RESCUING OR FIREFIGHTING – ¾ estimated savable ...**

Reanalysis of who can be saved. (see additional data attached)

Deterioration of electrical wiring caused by time or the environment is a predominant cause of ignition. *+ (pg. 24)

Fires in electrical distribution systems contribute significantly to the U.S. fire problem, accounting for a consistent portion of the problem year after year. *+ (page 69)

In 2006 an estimated 71,360 injuries involving electrical distribution or lighting equipment were reported to hospital emergency rooms. +

Electrical distributions and lighting equipment dwelling fires are the only type of home fires that have been shown to increase in frequency with increasing dwelling age. *+

The majority of 2002-2005 non-confined home structure fires involving electrical distribution or lighting equipment began with the ignition of products and materials often found in structural areas, including wire or cable insulation (30%), structural members or framing (12%), insulation within the structural area (5%). Pg 6#

Three-fourths (75%) of deaths in 2002-2005 home fires involving electrical distribution or lighting equipment involved victims who were outside the area of origin when the fire began. (pg 6#)

Branch circuit wiring (51%) accounted for half of the 2002-2005 non-confined home structure fires involving wiring. (pg 54 #)

Half (52%) of 2002-2005 non-confined home structure fires involving wiring began in fire areas of origin that are all concealed or exterior spaces. (pg 55 #)

The majority (57%) of 2002-2005 non-confined home structure fires involving overcurrent protection devices began with ignition wire or cable insulation. (pg 89#)

SUMMARY: Electrical distribution equipment is a highly significant contributor to the high number of civilian deaths and civilian injuries resulting year after year in home fires. Many lives can be saved and injuries prevented if earlier warning can be sounded.

CONCLUSION: The line type open switch activated by heat and/or fire is designed by earliest warning to prevent death by asphyxiation and burning.

(6b) Circuitry short circuits and overloads trip the circuit breakers when the breaker rating is reached. Lower leakage causes hot spots along the line and eventually causes fires that could be detected long before they could become autocatalytic. The line type open switch is designed to detect this hazard long before life is endangered.

Bibliography

- + Characteristics of Home Fire Victims, NFPA, Fire analysis and Research Division. July, 2005. Pg. 59, John R. Hall Jr.
- ** How Many People Can be Saved From Home Fires if Given More Time to Escape? Fire Technology, 40. Pgs 117-126, 2004: John R. Hall Jr. Fire Analysis and Research Division, NFPA
- + Statistics from National Electronic Injury Surveillance System (NEISS). Data obtained from the U.S. Consumer Product Safety Commission (CPSC) website, www.cpsc.gov
- *+ Linda E. Smith and Dennis McCoskrie, "What Causes Wiring Fires in Residences?" Fire Journal, Jan/Feb 1990. Volume 84, Number 1
- # "Home Structure Fires Involving Electrical Distribution and Lighting Equipment." John R. Hall, Jr., Fire Analysis and Research Division, NFPA, March 2008.

Cost Impact: This code change proposal will increase the cost of construction.

ICCFILENAME: SCARELLI F1-907.2.12.DOC

Public Hearing Results

**PART II- IRC B/E
Committee Action:**

Disapproved

Committee Reason: The electrical portion of the code already provides for protection with the arc-fault circuit-interrupter. There was no documentation provided that a product exists that will provide activation at 475°F.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

David F. Scarelli representing Sentry Signal Company, requests Approval as Submitted.

Commenter's Reason: The arc-fault circuit-interrupter distinguishes the difference between electronic wave patterns of naturally occurring sparks produced by light switches turning on/off and household appliances. When sparking of unknown origin is sensed the circuit is interrupted.

WOOD DOES NOT BURN!! It destructively distillates!!! A fault which does not spark, produces a combustible gas. When the gas mixes with oxygen it becomes inflammable. It travels throughout the walls and ceiling/floor spaces. When it is sparked it ignites explosively trapping the occupants that it surrounds. The line type heat sensor is the only available product that can be strung within the wall and ceiling/floor cavities which can detect hot spots and flame at their place of origin and sound the alarm to alert unsuspecting possible victims to avoid them of horrid death or injury.

The arc-fault circuit-interrupter will reduce detectable fire instances while the line type heat sensor will protect life both human and animal.

The NEC protects against the occurrence of fire while the line type heat sensor protects against loss of life and injury due to the fire itself.

Together, both the NEC and the line type heat sensor through technological innovations will more closely close the gap between death/injuries caused by fires by reducing the conditions which cause them and providing early warning alarms where they were not avoided.

Under-writers Laboratories lists three manufacturers that produce a line type heat sensor which are activated at 475F.

The line type heat sensor in question here was tested and approved May 19, 1999 in their LAB 417 ENG 8475096244. File S7229 Vol. 1 App. B was issued 5-14-99. It is documented at 455-485F.

References:

File S7229 Project 97NK41991 Report Appendix A, B and C, Underwriters Laboratory 1999

Science fair project on fires -Does wood Burn? <http://www.madsci.org/posts/archives/2000-03/953740466.Ch.r.html>

Why does smoke come from fire? <http://www.howstuffworks.com/question43.htm>

Preventing deaths and Injuries of Fire Fighters Working Above Fire-Damaged Floors(NIOSH) <http://www.cdc.gov/niosh/docs/wp-solutions/2009-114/>

What is an AFCI? <http://www.afcisafety.org/qa.html>

The Arc Fault Circuit Interrupter, John Pfeiffer, Pfeiffer Engineering <http://www.pfeiffereng.com/The%20Arc%20Fault%20Circuit%20Interrupter.pdf>

Research aims to reduce damage in home fires http://www.engr.wisc.edu/cee/newsletter/2001_spring/drywall.html

Consumer product safety Commission, Preventing Home Fires: Arc Fault Circuit Interrupters (AFCIs) <http://www.cpsc.gov/cpsc/pub/pubs/afci.html>

Couple Died on anniversary, Democrat and Chronicle, August 7, 2007– <http://www.DemocratandChronicle.com>

House Burns Four are Safe ,Democrat and Chronicle, August 4, 2007 <http://www.DemocratandChronicle.com>

Students Death ruled Accidental ,Democrat and Chronicle, August 14, 2007 <http://www.DemocratandChronicle.com>

Smoke Detector and Arc Fault Circuit Interrupter Requirements and Frequently Asked Questions (Washington, North Carolina) http://www.ci.washington.nc.us/planning/planning_smokedetector.aspx

NEMA AFCISafety.org – What is an AFCI (Q&A) <http://www.afcisafety.org/qa.html>

Final Action: AS AM AMPC _____ D

F120-09/10, Part I

907.2.13.1.2 (IBC [F] 907.2.13.1.2)

Proposed Change as Submitted

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

PART I – IFC

Revise as follows:

907.2.13.1.2 (IBC [F] 907.2.13.1.2) Duct smoke detection. Duct smoke detectors complying with Section 907.3.1 shall be located as follows:

1. In the main supply air duct of each air-handling system having a design capacity greater than 2,000 cubic feet per minute (cfm) (0.94 m³/s), downstream of any filters.
4. 2. In the main return air and exhaust air plenum of each air-conditioning handling system having a design capacity greater than 2,000 15,000 cubic feet per minute (cfm) (0.94 m³/s) (7.1 m³/s). Such detectors shall be located in a serviceable area downstream of the last duct inlet.
3. In the supply air system where multiple air-handling systems share common or supply return air ducts or plenums with a combined design capacity greater than 2,000 cfm (0.9 m³/s).
4. At each story in return air systems having a design capacity greater than 15,000 cfm (7.1 m³/s), where return air risers serve two or more stories.
- 2-5. At each connection to a vertical duct or riser serving two or more stories from a return air duct or plenum of an air-conditioning system with a design capacity of greater than 15,000 cfm (7.1 m³/s). In Group R-1 and R-2 occupancies a listed smoke detector is allowed to be used in each return air riser carrying not more than 5,000 cfm (2.4 m³/s) and serving not more than 10 air inlet openings.

Exception: Smoke detectors are not required in the return air system where all portions of the building served by the air distribution system are protected by area smoke detectors connected to a fire alarm system in accordance with the *International Fire Code*.

Reason: The intent of this proposal is to improve the level of detection of smoke within air handling units cost effectively and to correlate smoke detector requirements in air handling systems in the IBC, IFC and IMC with the requirements currently found in NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*.

During the 2006/2007 ICC Code Development Hearings in Orlando, both the Fire Code Committee and Mechanical Code Committee recommended approval of two similar code change proposals (F113-06/07 – Part 1 & Part 2). However, at the Final Action Hearings of the ICC in May 2007, the ICC membership voted to overturn both the Fire Code Committee and the Mechanical Code Committee's recommendations and disapproved the subject code change proposals. At the hearings, no new information or technical substantiation was brought forth to substantiate overturning the two Code Committee's recommendations for approval. It should be emphasized that the main issue of contention by the opponents of this code change proposal at both the Code Committee and Final Action Hearings was that this issue had been debated many times before in the ICC Code Development Process. However, that is untrue. During the 2009 Code Hearings in Minneapolis, the only mention of this occurring was in the Commonwealth of Virginia's Mechanical Code over 10 years ago.

The technical substantiation to revise the location of smoke detectors from the return air side to the supply air side is valid; and will improve the level of detection of smoke within air-handling units. Opponents may argue that return air detectors will detect fires in a building much quicker than detectors located on the supply air side, but return air detectors are **not** a substitute for area detectors. If there is a desire for early detection of smoke, area smoke detectors should be installed. However, we contend that the detector serving the supply air detector will operate as desired once the smoke concentration levels in the supply air exceeds the alarm threshold so occupants should not be at risk should the return air fan continues to run prior to the supply air fan shutting down. In addition, return air detectors will not be able to detect smoke from a fire on the supply side of air handling units due to fan belts, motors or combustible filters so their respective fan will shut off appropriately. A smoke detector located on the supply side can also detect smoke from an exterior fire that gets pulled into the fresh air intake for the air handling system. Thus, a smoke detector located on the supply side will serve the purpose of protecting building occupants from smoke produced by air handling unit fire or smoke ingress via the fresh air intake for the air handling unit. Therefore overall detection is improved.

Correlating the IFC, IBC and IMC with NFPA 90A is also important as many jurisdictions adopt both the IFC/IMC and NFPA 90A. Accredited health care organizations are required by law to comply with NFPA 90A. Not having the subject requirements in the IBC in concert with NFPA 90A results in the unnecessary installation of smoke detectors in both the return and supply air systems. This code change proposal aims to maintain detection in air handling systems, not remove it. There should be no increase in installation costs as this code change proposal merely shifts the location of devices from the return air side to the supply air side, where air handling units are greater than 2000 cfm. In fact, changing the requirement as proposed will reduce the cost in jurisdictions that must comply with the IFC/IMC and NFPA 90A (i.e., leaving the requirements as currently stated in both the IFC and IMC already results in unnecessary additional costs).

Specific code changes are as follows:

PART I:

(New) IFC 907.2.13.1.2, paragraph 1

Over the past few years, the U.S. General Services Administration has had a number of fire incidences that did not activate the building fire alarm system because there were no smoke detectors installed in the main supply air duct of the air-handling system downstream of any filter.

Conversely, GSA has no incidence of a return air duct smoke detector activating as a result of detecting smoke in the return air handling system. Installing duct smoke detectors in the supply air system would ensure that a fire within the supply air filters, in the air handling motors or originating outside near air intakes can be discovered before it spreads. Establishing a 2,000 cfm threshold for installing detectors in supply air fans appears to be an industry standard.

(New) 907.2.13.1.2, paragraphs 2 & 3 (Note: the intent is for 907.2.13.1.2 to be have similar language as 606.2.2 and 606.2.3 so the codes are coordinated). The current requirement for installing duct smoke detectors in return air systems exceeding 2,000 cfm is overly restrictive. The 15,000 cfm threshold for return air systems appears to be an industry standard, as this capacity was used in the legacy codes and is currently used by NFPA 90A. The term "air conditioning system" has been replaced with "air handling system" to more accurately reflect the type of system used in buildings today.

(Deleted text) Per the commentary for Section 606.1, requiring duct smoke detectors in exhaust air plenums does not provide any protection for the fan or the building occupants, since smoke is being exhausted out of the building. In addition, return air smoke detection is not supposed to be used as a means for detecting smoke in buildings.

(New) IFC 907.2.13.1.2, paragraph 4 is material extracted from IMC existing 606.2.3 (changed to 606.2.4).

This is an editorial change to coordinate the two codes.

(Revision) 907.2.13.1.2 Paragraph No. 5 (formally Paragraph No. 2) – The purpose of this code change is to correlate this paragraph with the changes above. The code language contained in the IBC does not have a capacity threshold for return air ducts/plenum with connections to more than two stories and, therefore, all return duct/plenum system that connects more than two floors would require duct mounted smoke detectors at the connection to the riser regardless of the size of the system. This would be onerous to smaller buildings that have multi-story returns. In addition, no other code (either the legacy codes or NFPA 90A require duct smoke detectors in multi-story return air systems unless they exceed 15,000 cfm. This change also would correlate the capacity requirements currently specified in NFPA 90A - 2007 edition (NFPA 90A – 6.4.2).

(New) Exception to IFC 907.2.13.1.2 (2) through (5) is material extracted from the IMC existing exception to 606.2.1 (changed to 606.2.2) that eliminates the need for duct smoke detectors in return air systems when the entire building is protected by area smoke detectors.

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

ICCFILENAME: FRABLE-F1-907.2.13.1.2.DOC

Public Hearing Results

PART I- IFC

Committee Action:

Approved as Modified

Modify the proposal as follows:

907.2.13.1.2 (IBC [F] 907.2.13.1.2) Duct smoke detection. Duct smoke detectors complying with Section 907.3.1 shall be located as follows:

1. In the main supply air duct of each air-handling system having a design capacity greater than 2,000 cubic feet per minute (cfm) (0.94 m³/s), downstream of any filters.
2. In the main return of each air handling system having a design capacity greater than 15,000 cubic feet per minute (cfm)(7.1 m³/s). Such detectors shall be located in a serviceable area downstream of the last duct inlet.
3. In the supply air system where multiple air-handling systems share common or supply return air ducts or plenums with a combined design capacity greater than 2,000 cfm (0.9 m³/s),
4. At each story in return air systems having a design capacity greater than 15,000 cfm (7.1 m³/s), where return air risers serve two or more stories.
5. At each connection to a vertical duct or riser serving two or more stories from a return air duct or plenum of an air-conditioning handling system with a design capacity of greater than 15,000 cfm (7.1 m³/s). In Group R-1 and R-2 occupancies a listed smoke detector is allowed to be used in each return air riser carrying not more than 5,000 cfm (2.4 m³/s) and serving not more than 10 air inlet openings.

Exception: Smoke detectors are not required in the return air system where all portions of the building served by the air distribution system are protected by area smoke detectors connected to a fire alarm system in accordance with the *International Fire Code*.

Committee Reason: The proposal was approved as it correlates with NFPA 90A and provides the detection on the supply side where it is most effective. The modification was simply to change the terminology from "air-conditioning" to "air handling" to be consistent with the intent and the wording throughout the proposed revisions.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Richard Grace representing VPMIA/VBCOA, requests Disapproval.

Commenter's Reason: The purpose of this code section is to protect the people in the structure and to allow time for evacuation during a fire. The purpose is not to protect the equipment. If the detection takes place in the supply duct, the air being tested will have been filtered by the unit filters and diluted with the outside air introduced through the return, which will jeopardize the effectiveness of the smoke detector. The proponent indicated that area smoke detectors were the primary protection for the occupants, however they do not shut down the air distribution equipment, allowing any smoke developed to be distributed throughout the structure while people are trying to evacuate.

This proposed change has been submitted many times in the past, and has been defeated every time except this time. The difference between then and now is that only the IFC committee heard testimony for both parts. A lot of people in the mechanical community, including myself, was not even aware that this change to the IMC was being presented. In the past, the ICC membership having vested interest in the IMC was included in this discussion by being presented with either Part I or Part II of the proposed change. Not this time.

The intent of installing a smoke detector in an air handling unit is simple, prevent the passage of smoke from one space to another. By installing this smoke detector in the return air portion of the air handling unit, upstream of any filters, exhaust air connections, outdoor air connections, or decontamination equipment, the smoke detector has a chance of doing what it is supposed to do. By installing the smoke detector as outlined in these proposed changes (Parts I and II), this will allow smoke that is being drawn into the return air system from one space to become diluted by filters, outdoor air, and decontamination equipment (not to mention that some is actually going to be exhausted to the exterior) prior to reaching the smoke detector and shutting down the air handling unit. This will allow smoke to be transferred from one space to another, effectively rendering a smoke detector operation ineffective.

Final Action: AS AM AMPC_____ D

F120-09/10, Part II IMC 606.2.1 (New), 606.2.2

Proposed Change as Submitted

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

PART II – IMC

Revise as follows:

606.2 Where required. Smoke detectors shall be installed where indicated in Sections 606.2.1 through ~~606.2.3~~ 606.2.4.

Exception: Smoke detectors shall not be required where air distribution systems are incapable of spreading smoke beyond the enclosing walls, floors and ceilings of the room or space in which the smoke is generated.

606.2.1 Supply air systems. Smoke detectors shall be installed in supply air systems with a design capacity greater than 2,000 cubic feet per minute (cfm) (0.94 m³/s), in the supply air duct or plenum downstream of any filters.

606.2.1 606.2.2 Return air systems. Smoke detectors shall be installed in return air systems with a design capacity greater than ~~2,000~~ 15,000 cfm (~~0.9~~ 7.1 m³/s), in the return air duct or plenum upstream of any filters, exhaust air connections, outdoor air connections, or decontamination equipment and appliances.

Exception: Smoke detectors are not required in the return air system where all portions of the building served by the air distribution system are protected by area smoke detectors connected to a fire alarm system in accordance with the *International Fire Code*. The area smoke detection system shall comply with Section 606.4.

606.2.2 606.2.3 Common supply and return air systems. Where multiple air-handling systems share common supply or return air ducts or plenums with a combined design capacity greater than 2,000 cfm (0.9 m³/s), the supply ~~return~~ air system shall be provided with smoke detectors in accordance with Section 606.2.1.

Exception: ~~Individual smoke detectors shall not be required for each fan-powered terminal unit, provided that such units do not have an individual design capacity greater than 2,000 cfm (0.9 m³/s) and will be shut down by activation of one of the following:~~

- ~~1. Smoke detectors required by Sections 606.2.1 and 606.2.3.~~
- ~~2. An approved area smoke detector system located in the return air plenum serving such units.~~
- ~~3. An area smoke detector system as prescribed in the exception to Section 606.2.1.~~

In all cases, the smoke detectors shall comply with Sections 606.4 and 606.4.1.

Reason: The intent of this proposal is to improve the level of detection of smoke within air handling units cost effectively and to correlate smoke detector requirements in air handling systems in the IBC, IFC and IMC with the requirements currently found in NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*.

During the 2006/2007 ICC Code Development Hearings in Orlando, both the Fire Code Committee and Mechanical Code Committee recommended approval of two similar code change proposals (F113-06/07 – Part 1 & Part 2). However, at the Final Action Hearings of the ICC in May 2007, the ICC membership voted to overturn both the Fire Code Committee and the Mechanical Code Committee's recommendations and disapproved the subject code change proposals. At the hearings, no new information or technical substantiation was brought forth to substantiate overturning the two Code Committee's recommendations for approval. It should be emphasized that the main issue of contention by the opponents

of this code change proposal at both the Code Committee and Final Action Hearings was that this issue had been debated many times before in the ICC Code Development Process. However, that is untrue. During the 2009 Code Hearings in Minneapolis, the only mention of this occurring was in the Commonwealth of Virginia's Mechanical Code over 10 years ago.

The technical substantiation to revise the location of smoke detectors from the return air side to the supply air side is valid; and will improve the level of detection of smoke within air-handling units. Opponents may argue that return air detectors will detect fires in a building much quicker than detectors located on the supply air side, but return air detectors are **not** a substitute for area detectors. If there is a desire for early detection of smoke, area smoke detectors should be installed. However, we contend that the detector serving the supply air detector will operate as desired once the smoke concentration levels in the supply air exceeds the alarm threshold so occupants should not be at risk should the return air fan continues to run prior to the supply air fan shutting down. In addition, return air detectors will not be able to detect smoke from a fire on the supply side of air handling units due to fan belts, motors or combustible filters so their respective fan will shut off appropriately. A smoke detector located on the supply side can also detect smoke from an exterior fire that gets pulled into the fresh air intake for the air handling system. Thus, a smoke detector located on the supply side will serve the purpose of protecting building occupants from smoke produced by air handling unit fire or smoke ingress via the fresh air intake for the air handling unit. Therefore overall detection is improved.

Correlating the IFC, IBC and IMC with NFPA 90A is also important as many jurisdictions adopt both the IFC/IMC and NFPA 90A. Accredited health care organizations are required by law to comply with NFPA 90A. Not having the subject requirements in the IBC in concert with NFPA 90A results in the unnecessary installation of smoke detectors in both the return and supply air systems. This code change proposal aims to maintain detection in air handling systems, not remove it. There should be no increase in installation costs as this code change proposal merely shifts the location of devices from the return air side to the supply air side, where air handling units are greater than 2000 cfm. In fact, changing the requirement as proposed will reduce the cost in jurisdictions that must comply with the IFC/IMC and NFPA 90A (i.e., leaving the requirements as currently stated in both the IFC and IMC already results in unnecessary additional costs).

Specific code changes are as follows:

PART II:

(Revision) 606.2. This is an editorial change to coordinate the two codes.

(New) IMC 606.2.1

Over the past few years, the U.S. General Services Administration has had a number of fire incidences that did not activate the building fire alarm system because there were no smoke detectors installed in the main supply air duct of the air-handling system downstream of any filter. Conversely, GSA has no incidence of a return air duct smoke detector activating as a result of detecting smoke in the return air handling system. Installing duct smoke detectors in the supply air system would ensure that a fire within the supply air filters, in the air handling motors or originating outside near air intakes can be discovered before it spreads. Establishing a 2,000 cfm threshold for installing detectors in supply air fans appears to be an industry standard.

(Revision/New) 606.2.1 and 606.2.2 (changed to 606.2.2 and 606.2.3, respectively) (Note: the intent is for 907.2.13.1.2 paragraphs 2 & 3 to have similar language as 606.2.2 and 606.2.3 so the codes are coordinated). The current requirement for installing duct smoke detectors in return air systems exceeding 2,000 cfm is overly restrictive. The 15,000 cfm threshold for return air systems appears to be an industry standard, as this capacity was used in the legacy codes and is currently used by NFPA 90A. The term "air conditioning system" has been replaced with "air handling system" to more accurately reflect the type of system used in buildings today.

(Deletion) Exception to IMC 606.2.2 (changed to IMC 606.2.3):

The 2,000 cfm requirement has been applied to the supply air side. Therefore the Exception needs to be deleted given the proposed new return air threshold will be increased from 2,000 cfm to 15,000 cfm.

(Revision) IMC 606.2.3 (changed to IMC 606.2.4) editorial as a new section was inserted. Existing text unchanged.

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

ICCFILENAME: FRABLE-F1-907.2.13.1.2.DOC

Public Hearing Results

PART II- IMC

Committee Action:

Approved as Submitted

Committee Reason: This proposal was approved to be consistent with the action taken on Part I of this proposal.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Richard Grace representing VPMA/VBCOA, requests Disapproval.

Commenter's Reason: See F120-09/10, Part I.

Final Action: AS AM AMPC_____ D